The third international conference organised by the European Respiratory Society (ERS) and the European Sleep Research Society (ESRS)

16-18 April 2015 Barcelona

CONFERENCE GUIDE

www.sleepandbreathing.org
Worldsleep 2015
31 October – 3 November 2015 · Istanbul, TR
The 7th World Congress of the World Sleep Federation
Sleep & Health

First Announcement

www.congrex-switzerland.com/worldsleep2015
On behalf of the European Respiratory Society (ERS) and the European Sleep Research Society (ESRS), we would like to welcome you to the third international Sleep and Breathing Conference.

The importance of sleep for health has received growing attention in recent years and has become a key area of research in medicine. There is now a realisation that sleep disorders, whether respiratory or non-respiratory, contribute substantially to the burden of ill health across society.

The Sleep and Breathing conference is the only meeting offering an integrated approach to the investigation and treatment of sleep disorders.

The conference will provide a state-of-the-art review of the latest developments in sleep and breathing disorders. It will provide a comprehensive update that will benefit all practitioners in the area of sleep medicine, covering areas including paediatrics, obesity, cardiovascular disorders, diabetes, psychology, psychiatry and neurology.

The vibrant city of Barcelona is the ideal host for our conference. As the second largest city in Spain it also has an excellent academic reputation and plenty of cultural offerings for you to explore outside of a busy conference schedule.

We look forward to seeing you for an exceptional ERS/ESRS International Sleep and Breathing Conference 2015.

Prof. Walter McNicholas  
Conference Chair

Prof. Anita Simonds  
Conference Chair
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EARLY BIRD REGISTRATION *opening* *April 2015*

LATE BREAKING ABSTRACT SUBMISSION *May 2015*

CONSULT THE SCIENTIFIC AND EDUCATIONAL PROGRAMME *available online*
The Sleep and Breathing Conference was organized by both the European Respiratory Society (ERS) and the European Sleep Research Society (ESRS)

European Respiratory Society
4, Ave Sainte-Luce,
CH-1003 Lausanne, Switzerland
Tel: + 41 21 213 01 01, Fax: + 41 21 213 01 00
E-mail: info@ersnet.org
www.ersnet.org

European Sleep Research Society
ESRS Office
Andreasstrasse 4
DE-93059 Regensburg
Germany
Tel: +49 941 29091 271, Fax: +49 941 29080 975
E-mail: maria.wiechmann@esrs.eu
www.esrs.eu

The Conference is also supported and endorsed by the following medical societies and joint sessions have been organised.

- European Association for the Study of Diabetes
- European Association for the Study of Obesity
- European Neurological Society
- European Paediatric Association
- European Psychiatric Association
- European Society of Cardiology
- European Society of Hypertension
- German Sleep Society (DGSM)
The Catalan capital is one of Spain’s most dynamic and diverse cities. The residents of the city speak both Spanish and Catalan, the buildings range from ancient to ultra-modern and as a major global city its influence reaches into the wide-ranging fields of science, commerce, education, entertainment, media, fashion and the arts.

On the shores of the Mediterranean, innovation, technology and scientific progress are embedded within Barcelona’s identity. Barcelona is the home of several world-renowned universities and hospitals, including the University of Barcelona, Hospital del Mar, University Hospital Clinic de Barcelona and the Centre for Research in Environmental Epidemiology (CREAL).

This academic excellence and spirit of innovation makes Barcelona the perfect location to welcome colleagues from across the world to drive forward respiratory sleep medicine.

For tourist information, visit: http://www.barcelonaturisme.com
Opening Reception

All registered delegates are welcome to join the Organising Committee and the faculty at the Opening Reception of the Sleep and Breathing Conference 2015 on Thursday 16 April. The reception will be held from 19:00 to 20:30 in the garden of the Palau de Congressos de Catalunya. The dress code is smart casual.

Registration

<table>
<thead>
<tr>
<th></th>
<th>Early Bird</th>
<th>Standard</th>
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<tbody>
<tr>
<td>ERS/ESRS Member</td>
<td>€395</td>
<td>€441</td>
</tr>
<tr>
<td>Non-Member</td>
<td>€451</td>
<td>€503</td>
</tr>
<tr>
<td>Physiotherapists, technicians and nurses</td>
<td>€316</td>
<td>€352</td>
</tr>
</tbody>
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For countries with GNP below 3,000$

<table>
<thead>
<tr>
<th></th>
<th>Early Bird</th>
<th>Standard</th>
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<tbody>
<tr>
<td>ERS/ESRS Member</td>
<td>€198</td>
<td>€221</td>
</tr>
<tr>
<td>Non-Member</td>
<td>€226</td>
<td>€252</td>
</tr>
<tr>
<td>Physiotherapists, technicians and nurses</td>
<td>€158</td>
<td>€176</td>
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Badges

Access to all scientific sessions is only permitted for valid badge holders. Badges will be handed out at the registration desk in Barcelona. We advise you to always wear your badge within the conference venue. €35 will be charged for replacement of lost badge.

Cancellation / Name change

If you need to cancel your attendance at the conference, a written application for a refund must be sent in writing before the 1 January, 2015 24:00 CET. If the application is received by this date, a refund, less a 25% administrative charge, will be granted. After this date no refund will be possible. A fee of €35 will be charged for name changes.

Car parking

Parking is available at the venue. The entrance is via the Avinguda Diagonal. Car parking costs €3.90 per hour and €30 per day.

Certificates of attendance and CME credits

18 CME credits have been accredited for the programme by EBAP and UEMS. EBAP is the European Board for Accreditation in Pneumology (EBAP), which work under the umbrella of the European Accreditation Council for Continuing Medical Education (EACCME). The EACCME is an institution of the European Union of Medical Specialists (UEMS; www.uems.net). You can print and download your CME and attendance certificates online after the Conference. More information: www.sleepandbreathing.org

Cloakroom

A cloakroom is available in the entrance area during the registration opening hours.

Coffee breaks

Morning and afternoon coffee breaks are available near the poster and exhibition area.
Insurance
The meeting organiser cannot accept liability for personal injuries sustained, or for loss or damage of property, either during, or as a result of the meeting. Please check the validity of your own insurance.

Language
The official language of the Conference is English. No simultaneous translation will be provided.

Mobile phones
Please be aware that mobile phones must be switched off during the sessions.

Opening hours
Onsite registrations will be accepted but delegates cannot be guaranteed to receive all conference documents.

<table>
<thead>
<tr>
<th></th>
<th>Thursday 16 April 2015</th>
<th>Friday 17 April 2015</th>
<th>Saturday 18 April 2015</th>
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<tbody>
<tr>
<td>Registration</td>
<td>07:00–17:30</td>
<td>07:00–17:30</td>
<td>07:00–16:00</td>
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<tr>
<td>Congress Centre</td>
<td>07:00–19:30</td>
<td>07:00–19:30</td>
<td>07:00–18:00</td>
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<tr>
<td>Exhibition</td>
<td>07:30–18:00</td>
<td>07:30–18:00</td>
<td>07:30–16:30</td>
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</table>

Responsibility
The participant acknowledges that he/she has no right to lodge damage claims against the organisers, should the holding of the meeting be hindered or prevented by political events (such as acts of terrorism, danger of hostility, war etc.) or by unexpected economic events or generally by force majeure, or should the nonappearance of speakers or other reasons necessitate programme changes. With registration, the participant accepts this proviso.

Speaker Service Center (SSC)
There is a centrally located SSC on the floor -1 near the exhibition. All speakers are asked to hand in their PowerPoint presentation at least two hours before their lecture at the SSC. Speakers are requested to adhere strictly to the schedule and time limit indicated in the programme. The indicated lecture times include discussion time.

Visa Requirements
A valid passport (or identity card for European Community nationals) is required to enter Spain. Visas are not necessary for citizens of EU countries. Please contact your local Spanish embassy, consulate or travel agency for further information.

Wifi
Please note that there is no Wifi in the conference venue.
### Thursday 16 April 2015

<table>
<thead>
<tr>
<th></th>
<th>Programme Session</th>
<th>Title</th>
<th>Time</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plenary Session</td>
<td>Sleep research: Year in Review</td>
<td>08:00–10:00</td>
<td>Auditorium</td>
</tr>
<tr>
<td>2</td>
<td>Specialised Symposium</td>
<td>Sleep apnoea across the life-span</td>
<td>10:30–12:00</td>
<td>Auditorium</td>
</tr>
<tr>
<td>3</td>
<td>Specialised Symposium</td>
<td>Sleep movement disorders</td>
<td>10:30–12:00</td>
<td>Room J</td>
</tr>
<tr>
<td>4</td>
<td>Specialised Symposium</td>
<td>Narcolepsy and idiopathic hypersomnolence: diagnostic and management challenges</td>
<td>10:30–12:00</td>
<td>Room J</td>
</tr>
<tr>
<td>5</td>
<td>Breakout Session</td>
<td>Behaviour modification in obstructive sleep apnoea: a rewarding strategy</td>
<td>12:30–13:30</td>
<td>Room H</td>
</tr>
<tr>
<td>6</td>
<td>Breakout Session</td>
<td>So you want to be a sleep practitioner</td>
<td>12:30–13:30</td>
<td>Room F</td>
</tr>
<tr>
<td>7</td>
<td>Practical Workshop</td>
<td>The spectrum of positive pressure therapy</td>
<td>13:45–14:45</td>
<td>Room J</td>
</tr>
<tr>
<td>8</td>
<td>Thematic Poster Session</td>
<td>Chronic disorders</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>9</td>
<td>Thematic Poster Session</td>
<td>Obesity and physiology</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>10</td>
<td>Thematic Poster Session</td>
<td>OSA and central sleep apnoea I</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>11</td>
<td>Thematic Poster Session</td>
<td>Paediatrics</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>12</td>
<td>Plenary Session</td>
<td>Screening for sleep disordered breathing</td>
<td>15:15–17:15</td>
<td>Auditorium</td>
</tr>
<tr>
<td>13&amp;14</td>
<td>Industry Sponsored Evening Symposia</td>
<td>more information page 67</td>
<td>17:30–19:00</td>
<td>Room J &amp; Room F</td>
</tr>
<tr>
<td>OR</td>
<td>Opening Reception</td>
<td>The Organising Committee is inviting all delegates to join them at the Opening Reception of the 2015 Sleep and Breathing Conference!</td>
<td>19:00–20:30</td>
<td>Garden Conference Venue</td>
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### Friday 17 April 2015

<table>
<thead>
<tr>
<th></th>
<th>Programme Session</th>
<th>Title</th>
<th>Time</th>
<th>Venue</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>Specialised Symposium</td>
<td>Sleep in pulmonary disease: a forgotten dimension</td>
<td>08:00–09:30</td>
<td>Auditorium</td>
</tr>
<tr>
<td>16</td>
<td>Specialised Symposium</td>
<td>Non CPAP therapies for OSA</td>
<td>08:00–09:30</td>
<td>Room H</td>
</tr>
<tr>
<td>17</td>
<td>Specialised Symposium</td>
<td>Tired but wired: personal and population consequences of sleep deprivation</td>
<td>08:00–09:30</td>
<td>Room J</td>
</tr>
<tr>
<td>18</td>
<td>Plenary Session</td>
<td>State of the art: heart disease and sleep disordered breathing</td>
<td>10:00–12:00</td>
<td>Auditorium</td>
</tr>
<tr>
<td>19</td>
<td>Breakout Session</td>
<td>Telemedicine in OSA patients</td>
<td>12:30–13:30</td>
<td>Room H</td>
</tr>
<tr>
<td>20</td>
<td>Breakout Session</td>
<td>Dilemmas in the daily management of OSA patients</td>
<td>12:30–13:30</td>
<td>Room F</td>
</tr>
<tr>
<td>21</td>
<td>Industry Sponsored Symposium</td>
<td>more information page 67</td>
<td>13:45–14:45</td>
<td>Room J</td>
</tr>
<tr>
<td>22</td>
<td>Thematic Poster Session</td>
<td>Diagnostics</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>23</td>
<td>Thematic Poster Session</td>
<td>Insomnia and narcolepsy</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>24</td>
<td>Thematic Poster Session</td>
<td>OSA and central sleep apnoea II</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>25</td>
<td>Thematic Poster Session</td>
<td>Quality of life, devices and other therapies</td>
<td>13:45–14:45</td>
<td>Thematic Poster Area</td>
</tr>
<tr>
<td>26</td>
<td>Plenary Session</td>
<td>Sleepiness: causes, evaluation and management</td>
<td>15:15–17:15</td>
<td>Auditorium</td>
</tr>
<tr>
<td>27</td>
<td>Specialised Symposium</td>
<td>Paediatric sleep and breathing beyond the adenoids and the tonsils: abnormalities of respiratory control, upper airway function and lung disease</td>
<td>17:30–19:00</td>
<td>Auditorium</td>
</tr>
<tr>
<td>28</td>
<td>Specialised Symposium</td>
<td>Sleep, cognitive function and memory: what have we learnt?</td>
<td>17:30–19:00</td>
<td>Room H</td>
</tr>
<tr>
<td>29</td>
<td>Specialised Symposium</td>
<td>Obesity, hypoxia and sleep-disordered breathing: a complex interaction</td>
<td>17:30–19:00</td>
<td>Room J</td>
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### Saturday 18 April 2015

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<tr>
<th></th>
<th>Programme Session</th>
<th>Title</th>
<th>Time</th>
<th>Venue</th>
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<tbody>
<tr>
<td>30</td>
<td>Specialised Symposium</td>
<td>Pathophysiology of sleep-disordered breathing and neurological control of breathing: from physiology to pathology</td>
<td>08:00–09:30</td>
<td>Auditorium</td>
</tr>
<tr>
<td>31</td>
<td>Specialised Symposium</td>
<td>Noninvasive mechanical ventilation from traditional to novel modes</td>
<td>08:00–09:30</td>
<td>Room H</td>
</tr>
<tr>
<td>32</td>
<td>Specialised Symposium</td>
<td>Chronobiology and circadian disorders for clinicians</td>
<td>08:00–09:30</td>
<td>Room J</td>
</tr>
<tr>
<td>33</td>
<td>Plenary Session</td>
<td>New paradigms in insomnia</td>
<td>10:00–12:00</td>
<td>Auditorium</td>
</tr>
<tr>
<td>34</td>
<td>Breakout Session</td>
<td>Genetics in sleep apnoea</td>
<td>12:30–13:30</td>
<td>Room H</td>
</tr>
<tr>
<td>35</td>
<td>Breakout Session</td>
<td>Complex cases in sleep-disordered breathing, and comorbidities</td>
<td>12:30–13:30</td>
<td>Room J</td>
</tr>
<tr>
<td>36</td>
<td>Specialised Symposium</td>
<td>Sleepiness and driving</td>
<td>14:30–16:00</td>
<td>Auditorium</td>
</tr>
<tr>
<td>37</td>
<td>Specialised Symposium</td>
<td>Sleep-disordered breathing in neurological disorders</td>
<td>14:30–16:00</td>
<td>Room H</td>
</tr>
<tr>
<td>38</td>
<td>Specialised Symposium</td>
<td>Mild OSA: is it really a risk?</td>
<td>14:30–16:00</td>
<td>Room J</td>
</tr>
<tr>
<td>39</td>
<td>Plenary Session</td>
<td>Future directions in the treatment of sleep-disordered breathing</td>
<td>16:15–17:15</td>
<td>Auditorium</td>
</tr>
</tbody>
</table>
PROGRAMME DETAILS

This information is valid up to March 10 2015.
Visit www.sleepandbreathing.org for updates.
This programme is valid as per 10 March 2015

### Auditorium Session 1
**08:00 - 10:00**

**Plenary Session “Sleep Research: Year in Review”**
Aims: Review of significant advances in sleep research in the last 12 months.
Target audience: Sleep researchers and sleep clinicians
Chairs: W. De Backer (Antwerp, Belgium), L. Nobili (Milan, Italy)

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>Basic sleep research</td>
<td>P-H. Luppi (Lyon, France)</td>
</tr>
<tr>
<td>08:30</td>
<td>Neurological sleep research</td>
<td>C. Bassetti (Bern, Switzerland)</td>
</tr>
<tr>
<td>09:00</td>
<td>Psychiatric and psychological sleep research</td>
<td>T. Pollmaecher (Ingolstadt, Germany)</td>
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<tr>
<td>09:30</td>
<td>Cardio-respiratory sleep research</td>
<td>W. McNicholas (Dublin, Ireland)</td>
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### Auditorium Session 2
**10:30 - 12:00**

**Specialised Symposium “Sleep Apnoea Across the Life-Span”**
Aims: The aims of this session are to improve the knowledge on
- Prevalence of sleep apnoea in different age categories
- The morbidity and mortality in sleep apnoea
- Overall impact of sleep apnoea in different life stages
- The relationships between sleep apnoea and cost outcomes
- To demonstrate that treatment of sleep apnoea is cost-benefit efficient
- Relevance and compliance for CPAP according to age
Target audience: Pneumologists with special interest in sleep-disordered breathing, and general physicians and epidemiologists as well.
Chairs: J. Verbraecken (Antwerp, Belgium), P-H. Luppi (Lyon, France)

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<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>10:30</td>
<td>Morbidity and mortality in sleep apnoea across the ages</td>
<td>J. Montserrat (Barcelona, Spain)</td>
</tr>
<tr>
<td>11:00</td>
<td>Impact of CPAP across the ages</td>
<td>R.L. Riha (Edinburgh, United Kingdom)</td>
</tr>
<tr>
<td>11:30</td>
<td>Medical utilisation and cost outcomes of sleep apnoea</td>
<td>W. De Backer (Antwerp, Belgium)</td>
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### Room H Session 3
**10:30 - 12:00**

**Specialised Symposium “Sleep Movement Disorders”**
Aims: State of the art presentation on clinically relevant aspects of this group of sleep disorders
Target audience: Neurologists, paediatricians, sleep specialists and pneumologists also interested in non-respiratory sleep disorders.
Chairs: C. Bassetti (Bern, Switzerland), J. Puertas (Valencia, Spain)

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<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>10:30</td>
<td>Sleepwalking and its differential diagnosis</td>
<td>L. Nobili (Milan, Italy)</td>
</tr>
<tr>
<td>11:00</td>
<td>REM sleep behaviour disorder</td>
<td>A. Iranzo (Barcelona, Spain)</td>
</tr>
<tr>
<td>11:30</td>
<td>Restless legs syndrome</td>
<td>D. Garcia-Borreguero (Madrid, Spain)</td>
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</table>

### Room J Session 4
**10:30 - 12:00**

**Specialised Symposium “Narcolepsy and Idiopathic Hypersonolence: Diagnostic and Management Challenges”**
Aims: The aims of this session are to present an update and state-of-the-art summary of our current knowledge of disorders of central hypersomnolence. Practical aspects regarding diagnosis and management, including their inherent challenges, will be presented.
Target audience: Sleep physicians, allied and nursing professionals working in the area of sleep medicine; neurologists and those practising in the field of neurology and sleep.
Chairs: G. Lammers (Leiden, Netherlands), T. Pollmaecher (Ingolstadt, Germany)
10:30 Pathophysiology of narcolepsy
   R. Khatami (Barmelweid, Switzerland)

11:00 Pitfalls and practice in the diagnosis of hypersomnolence
   J. Santamaria (Barcelona, Spain)

11:30 Co-morbidities in narcolepsy
   G. Lammers (Leiden, Netherlands)

ROOM H
SESSION 5
12:30 - 13:30

BREAKOUT SESSION “BEHAVIOUR MODIFICATION IN OBSTRUCTIVE SLEEP APNOEA: A REWARDING STRATEGY”

Aims: The aims of this session are to explain that OSA is in large parts a preventable disease; to discuss the studies on weight reaction, exercise and smoking cessation; and to understand the concepts psychologists have developed to modify behaviour.

Target audience: Sleep specialists, pneumology, internal medicine, psychologists and neurologists.

12:30 Relevant weight reduction is possible in OSA
   K. Johansson (Stockholm, Sweden)

13:00 Position training and OSA
   N. De Vries (Amsterdam, Netherlands)

ROOM F
SESSION 6
12:30 - 13:30

BREAKOUT SESSION “SO YOU WANT TO BE A SLEEP PRACTITIONER”

Aims: To describe training possibilities in Sleep Medicine in Europe

Target audience: Respiratory physicians, neurologists, psychiatrists, trainees, sleep technologists, primary care doctors

12:30 Training in respiratory sleep medicine: ERS Hermes and beyond
   A. Simonds (London, United Kingdom)

12:50 Becoming a somnologist: the ESRS route
   T. Penzel (Berlin, Germany)

13:10 A sleep on the job: training to become a somnologist
   B.G. Cooper (Birmingham, United Kingdom)

ROOM J
SESSION 7
13:45 - 14:45

PRACTICAL WORKSHOP “THE SPECTRUM OF POSITIVE PRESSURE THERAPY”

Aims: The aim of this session is to provide basic knowledge about PAP treatment. This includes a short description of the physiological basis, main principles of treatment and also the major acute and chronic impact of PAP treatment. The main differences between bi-level positive airway pressure and (auto)CPAP will be presented as well as the major indications, contra-indications and results for specific indications. Finally, adaptive servo ventilation (ASV) will be presented. At the end of the session, practical equipment demonstrations will take place. Hands-on practical training will be available to all delegates, through demonstrations led jointly by the faculty and industry materials.

Target audience: Anybody who has an interest in delivery of PAP, e.g. respiratory function technologists/scientists, respiratory (OSAS) nurses, respiratory physician assistants, physicians, OSAS consultants and others.

Chair: J. Verbraecken (Antwerp, Belgium)

13:45 Introduction by Chair
   J. Verbraecken (Antwerp, Belgium)

13:50 Standard CPAP versus bilevel CPAP
   B. Buyse (Leuven, Belgium)

14:00 Adaptive servo-ventilation (ASV)
   W. Randerath (Solingen, Germany)

14:10 Hands-on

Thematic Poster

Posters of accepted abstracts will be manned by their authors. Faculty will coordinate the interactions between authors and delegates.

THEMATIC POSTER AREA
SESSION 8
13:45 - 14:45

THEMATIC POSTER SESSION “CHRONIC DISORDERS”

Chairs: O. Basoglu (Izmir, Turkey), J.L. Pepin (Grenoble, France)

P1 - Observational sleep study on patients with non-cystic fibrosis bronchiectasis - Preliminary results

P2 - Overlap of obstructive sleep apnea and bronchial asthma: effect on asthma control
P3 - Prevalence of obstructive sleep apnea among patients with coronary artery disease in Saudi Arabia
P4 - Pulmonary function evaluation and OSAS in Acromegalic syndrome
P5 - Different effect of transient and chronic hypoxia on the L-arginine pathway
P6 - Obstructive sleep apnea (OSA) and excessive daytime sleepiness (EDS) are independently associated with depression in a community based population of Australian men.
P7 - Sleep disorders, social status and self-rated health in Russian female population
P8 - The relationship between excessive daytime sleepiness, functional capacity and autonomic modulation in adult controlled asthmatics
P9 - Gender differences of predictors of severity of obstructive sleep apnea
P10 - Bilateral congenital choanal stenosis and changes in sleep: A case report
P11 - Phenotypes of Comorbidity in OSAS patients
P12 - Age specific long term reduction of blood pressure under CPAP treatment in hypertensive patients with obstructive sleep apnea syndrome
P13 - Sleep in North Indian patients of Chronic Obstructive Pulmonary Disease (COPD)
P14 - Ellagic acid ameliorates bleomycin induced pulmonary fibrosis in wistar rats.
P15 - Mandibular Movements during Cheyne Stokes Breathing in Heart Failure
P16 - Daytime sleepiness in patients with chronic obstructive pulmonary disease
P17 - The Relationship between Substance Abuse (tobacco and opium) and Chronic Obstructive Pulmonary Disease in Hospitalized Patients
P18 - Severity of Anxiety Disorders in Patients with Chronic Obstructive Pulmonary Disease
P19 - Excessive daytime sleepiness in patients with chronic kidney disease undergone hemodialysis.
P20 - Negative expiratory pressure test as screening to obstructive sleep apnoea in Myasthenia Gravis patients.

THEMATIC POSTER AREA SESSION 9

THEMATIC POSTER SESSION “OBESITY AND PHYSIOLOGY”

Chairs: M.R. Bonsignore (Palermo, Italy), B.G. Cooper (Birmingham, United Kingdom)

P26 - Association between sleep disordered breathing and glaucoma
P27 - Relation between body mass index and control of bronchial asthma among Egyptian adults with asthma
P28 - Evaluation of the Frequency of Overlap Syndrome in Mild Hypoxemic Chronic Obstructive Pulmonary Disease Patients without Obstructive Sleep Apnea Syndrome Symptoms
P29 - Sleep disorders and the TNF-α /G-308A polymorphism in program WHO MONICA MOPSY
P30 - Is there any association between the severity of SAOS and glycated hemoglobin?
P31 - Neutrophil-to-Lymphocyte Ratio in patients with Obstructive Sleep Apnea Syndrome
P32 - Arginase contributes to hypertension and endothelial dysfunction induced by chronic intermittent hypoxia
P33 - Activation of nodose ganglion cannabinoid receptors potentiates upper airway muscle activation
P34 - CPAP treats sinus node dysfunction?
P35 - An Observational Study of Obstructive Sleep Apnoea in Malta
P36 - Studying the central respiratory chemoreception using a mathematical model of phrenic nerve discharges.
P37 - The effect of sleep on exhaled volatile compound pattern in obstructive sleep apnoea
P38 - Healthy-Lifestyle Interventions for Obstructive Sleep Apnea (OSA): Current UK practice.
P39 - Visual evoked potentials alterations in OSAS patients with no visual impairment
P40 - Sleep disordered breathing after facial nerve paralysis treatment with hemihypoglossal-facial nerve anastomosis
P41 - Study of the possible relationship between the tissue intermittent hypoxia in sleep apnea and the serum uric acid / creatinine ratio
P42 - Why exhaled nitric oxide is elevated in patients with obstructive sleep apnea syndrome

THEMATIC POSTER AREA SESSION 10

THEMATIC POSTER SESSION “OSA AND CENTRAL SLEEP APNOEA I”

Chairs: J. Montserrat (Barcelona, Spain), D. Pevernagie (Heeze, Netherlands)

P46 - Obstructive sleep apnea in women and risk factors - retrospective analysis
P47 - Adaptive Servo-Ventilation in Patients with Heart Failure and Cheyne - Stokes Respiration
P48 - Clinical-functional effectiveness of auto-CPAP therapy in patients with combined pathology—BA+OSAHS
P49 - The Effect Of Continuous Positive Airway Pressure On Respiratory Infections In Patients Suffering From Obstructive Sleep Apnoea.

P50 - Are there differences between patients with severe obstructive sleep apnea syndrome regarding sleepiness? Retrospective study.

P51 - Improving the identification of patients with obstructive sleep apnea: a new screening tool for high risk populations.

P53 - A survey of the perception of obstructive sleep apnea by primary care physicians in Republic of Moldova

P54 - Positive airway pressure (PAP) and adherence – a long-term follow-up study: The Icelandic Sleep Apnea Cohort (ISAC)

P55 - Effect of mandibular advancement device therapy on cognitive and psychomotor performance in obstructive sleep apnea

P57 - Predicting the apnea by non-linear analysis of EEG signal in patients with sleep apnea

P58 - Non alcoholic fatty liver disease is an independent risk factor for inflammation in obstructive sleep apnea syndrome in obese Asian Indians.

P59 - Effect of Nasal Continuous Positive Airway Pressure (CPAP) Therapy on Sleep Architecture in Patients with Sleep Apnea

P60 - The effects of chronic morphine and subsequney GAL-160 administration on sleep architecture and EEG power density in rats

THEMATIC POSTER AREA

THEMATIC POSTER SESSION “PAEDIATRICS”

Chairs: W. De Backer (Antwerp, Belgium), A. Kaditis (Piraeus, Greece)

P61 - Excess cases of narcolepsy in children and adolescents vaccinated with an AS03 adjuvanted pandemic influenza vaccine in Germany

P62 - Sleep breathing disorders in children with drug-resistant catastrophic epileptic encephalopathy

P63 - Rhinitis: a risk factor for persistence of sleep disordered breathing in paediatric patients after adenotonsillectomy?

P64 - Declarative and non-declarative memory consolidation in children with sleep disorder breathing

P65 - Comparison Between Parent Reported Usage and Machine Download Data of Children on Home Long Term Non-Invasive Ventilation

P66 - Environment in pediatric wards: sound, light and temperature

P67 - Psychiatric aspects and confounding factors in mothers of asthmatic children

P68 - Long-term Parental Satisfaction with Adenotonsillectomy – a Population Study

P69 - Snoring but not BMI influences the aggressive behavior and concentration problems in children

P70 - Central apneas in childhood’s Obstructive Sleep Apnea Syndrome

P71 - Difference between obstructive apnoe-hypopnoea indexes in REM versus NREM sleep stage in children

AUDITORIUM

PLENARY SESSION “SCREENING FOR SLEEP DISORDERED BREATHING”

Aims: The aim of this session is to understand which target groups are most likely to be affected by sleep disordered breathing and which equipment or questionnaires should be used.

Target audience: Respiratory and sleep clinicians, anaesthesiologists and other healthcare professionals.

Chairs: A. Simonds (London, United Kingdom), M.R. Bonsignore (Palermo, Italy)

15:15 Who is at high risk of OSA, who should we screen, and why?
J.A. Hedner (Gothenburg, Sweden) 23

15:45 Technology for screening off SDB
T. Penzel (Berlin, Germany) 24

16:15 Screening for SDB in cardiac patients in the acute and ambulatory setting
S. Andreas (Immenhausen, Germany) 25

16:45 Screening for SDB before surgery
J. Verbraecken (Antwerp, Belgium) 26

ROOM J & F

INDUSTRY ORGANISED EVENING SYMPOSIA: MORE INFORMATION ON PAGE 67
AUDITORIUM  
SESSION 15  
08:00 - 09:30

SPECIALISED SYMPOSIUM “SLEEP IN PULMONARY DISEASE: A FORGOTTEN DIMENSION”

Aims: Respiratory disease can considerably affect sleep quality, and the sleep state modifies ventilation, especially in patients with respiratory disease. This Symposium will focus on sleep disturbances in three common respiratory conditions, i.e. nocturnal hypoventilation in obesity-hypoventilation syndrome, bronchial asthma and COPD, by examining pathophysiology, clinical features, and impact of treatment of sleep disorders on prognosis.

Target audience: Sleep physicians, allied and nursing professionals working in the area of sleep medicine and those practising in the field of neurology and sleep.

Chairs: J. Santamaria (Barcelona, Spain), S. Andreas (Immenhausen, Germany)

08:00  Hypoventilation in obesity: pathophysiology and clinical approach  
J.L. Pepin (Grenoble, France)  

08:30  Sleep, OSA and bronchial asthma  
M.R. Bonsignore (Palermo, Italy)  

09:00  Sleep and breathing in COPD: does nocturnal O2 or NIV decrease mortality?  
W. McNicholas (Dublin, Ireland)

ROOM H  
SESSION 16  
08:00 - 09:30

SPECIALISED SYMPOSIUM “NON CPAP THERAPIES FOR OSA”

Aims: The aim of this session is to review the most recent progress in the treatment modalities other than CPAP for obstructive sleep apnoea.

Target audience: Pulmonologists, ENT and sleep clinicians interested in OSA.

Chairs: J. Verbraecken (Antwerp, Belgium), D. Pevernagie (Heeze, Netherlands)

08:00  Mandibular advancement device therapy for OSA  
W. Randerath (Solingen, Germany)  

08:30  Hypoglossal nerve stimulation  
D. Rodenstein (Brussels, Belgium)  

09:00  Upper airway interventions and bariatric surgery in OSA  
H. Ashrafian (London, United Kingdom)

ROOM J  
SESSION 17  
08:00 - 08:50

SPECIALISED SYMPOSIUM “TIRED BUT WIRED: PERSONAL AND POPULATION CONSEQUENCES OF SLEEP DEPRIVATION”

Aims: To explain the consequences of sleep deprivation for individuals on work performance and for the population as a whole.

Target audience: Physicians, nurses, sleep technologists and psychologists.

Chairs: W. De Backer (Antwerp, Belgium), A. Simonds (London, United Kingdom)

08:00  The role of sleep loss and circadian misalignment on metabolism  
R. Leproult (Brussels, Belgium)  

08:25  Occupational accidents and sleep  
A. Simonds (London, United Kingdom)

08:50  Keynote Lecture “Pregnancy and SDB”  
C. Sullivan (Camperdown, New South Wales, Australia)  

ROOM J  
SESSION 17  
08:50 - 09:30

PLENARY SESSION “STATE OF THE ART: HEART DISEASE AND SLEEP DISORDERED BREATHING”

Aims: The aim of this session are to understand clinically relevant data on the sequel of obstructive and central apnoeas; and discuss the pros and con of CPAP and ASV on important clinical outcomes.

Target audience: Sleep specialists, pneumology, internal medicine and cardiology.

Chairs: B. Fauroux (Paris, France), J.A. Hedner (Gothenburg, Sweden)

10:00  Diastolic dysfunction and hypertension: consequences and relationship to OSA  
F. Barbe Illa (Lleida, Spain)  

10:30  OSA and myocardial infarction  
M. Arzt (Regensburg, Germany)

17 April 2015
11:00  OSA as a cause of cardiovascular disease, including heart failure
S. Ryan (Dublin, Ireland)

11:30  Treatment of Cheyne-Stokes respiration: is there enough evidence?
S. Andreas (Immenhausen, Germany)

ROOM H  SESSION 19  12:30 - 13:30

BREAKOUT SESSION “TELEMEDICINE IN OSA PATIENTS”
Aims: The symposium will present novel methods to manage sleep disordered breathing in diagnosis and therapy through the tools of telemedicine applications. This covers diagnostic methods, therapeutic interventions, and therapy follow up studies. Not only regular CPAP compliance is monitored using telemedicine data logging but also non-invasive ventilation can be monitored using these data logging techniques.
Target audience: Physicians, sleep specialists, technicians and allied healthcare professionals.

Chairs: J. Montserrat (Barcelona, Spain), T. Penzel (Berlin, Germany)

12:30  Telemedicine-based approach for OSA: methodology
J. Montserrat (Barcelona, Spain)

12:50  Telemedicine for OSA in patients with cardiovascular risk factors
J.L. Pepin (Grenoble, France)

13:10  Telemedicine for noninvasive ventilation
M. Vitacca (Lumezzane, Italy)

ROOM F  SESSION 20  12:30 - 13:30

BREAKOUT SESSION “DILEMMAS IN THE DAILY MANAGEMENT OF OSA PATIENTS”
Aims: To generate a discussion around frequent issues in the management of OSA patients
Target audience: Respiratory and sleep specialists

12:30  Residual sleepiness in adequately treated OSA
J. Puertas (Valencia, Spain)

12:50  When to treat elderly OSA patients
M. Morrell (London, United Kingdom)

13:10  The choice of CPAP interfaces
D. Pevernagie (Heeze, Netherlands)

ROOM J  SESSION 21  13:45 - 14:45

INDUSTRY ORGANISED SYMPOSIUM: MORE INFORMATION ON PAGE 67

Thematic Poster
Posters of accepted abstracts will be manned by their authors. Faculty will coordinate the interactions between authors and delegates.

THEMATIC POSTER AREA  SESSION 22  13:45 - 14:45

THEMATIC POSTER SESSION “DIAGNOSTICS”
Chairs: J.A. Hedner (Gothenburg, Sweden), M.R. Bonsignore (Palermo, Italy)

P72  -  Less Obtrusive Sensors for Reliable Detection of Breathing Pattern and Heart Function During Sleep
P73  -  Prevalence of Obstructive Sleep Apnea Syndrome in Patients with Acromegaly
P74  -  Effect of semi-recumbent position on severity of obstructive sleep apnea syndrome in patients with heart failure
P75  -  Validity and predictive value of the ApneaLinkTMin the identification of sleep apnea in patients with stable chronic heart failure
P76  -  Which is the ideal tool to assess atherosclerosis risk in obstructive sleep apnea? Intima Media Tickness (IMT) or Mean Platelet Volume (MPV)
P77  -  Rapid Eye Movements In Non-REM Sleep In A Patient With Anxiety Disorder
P78  -  Predicting obstructive sleep apnea with periodic snoring sound
P79  -  Affect of auto-CPAP therapy on functional parameters of upper respiratory tract in patients with BA combined with OSAHS
P80  -  Cardiac remodeling in mild and severe obstructive sleep apnea
P81  -  Sleepiness scale evaluation of OSAS in determining the severity of the disease role
P82  -  Screening for sleep apnea in patients with cardiovascular diseases via overnight pulse oximetry in outpatient clinic
17 April 2015

P83 - Effect of CPAP therapy on pulmonary artery pressure in OSA patients
P84 - Sleep characteristics and the risk of obstructive sleep apnoea syndrome in commercial bus drivers
P85 - The relationship between cardiometabolic disorders and obstructive sleep apnea syndrome
P86 - Obstructive Sleep Apnea in patients referred for bariatric surgery
P87 - A simplified model of screening obstructive sleep apnoea in elderly population.
P88 - Accuracy of Obstructive Sleep Apnea screening questionnaires on Brazilian population
P89 - Obstructive Sleep Apnea in patients submitted to ambulatory blood pressure monitoring: preliminary data
P90 - Sleep quality through overnight standard polysomnography in patients with cerebral palsy.
P91 - Validation of the Watch PAT 200 (Itamar Medical Ltd.) as a Diagnostic Procedure for Detection of Sleep Disordered Breathing (SDB) in Patients with Heart Failure
P92 - Polysomnographic data, sleep quality, sleepiness and co-morbidities in patients with REM-related obstructive sleep apnea
P93 - Effects of neuromuscular electrical stimulation on the masticatory muscles and physiologic sleep variables in adults with cerebral palsy: a novel therapy approach
P94 - Pulmonary function and obstructive sleep apnoea syndrome in commercial drivers

THEMATIC POSTER AREA
SESSION 23

THEMATIC POSTER SESSION “INSOMNIA AND NARCOLEPSY”

Chairs: D. Pevernagie (Heeze, Netherlands), S. Kyle (Manchester, United Kingdom)
P95 - Leg Thermal Therapy Improved Sleep Structure as well as Hemodynamics in Patients with Chronic Heart Failure
P96 - Insomnia in adults with asthma: Results from the Norwegian HUNT 3 study
P97 - Quality of sleep in 45–69-year-old population in Russia
P98 - Sleep drunkenness with hypersomnia: diagnosis and treatment of circadian rhythmicity in 14 severely affected patients.
P99 - Multiple Sleep Latency Testing in Adults in Europe: 9 year follow-up.
P100 - A Case report: Daytime sleepiness in an adult patient with Cystic fibrosis
P101 - A good sleep makes you younger by the day
P102 - Sleep, pulmonary function and quality of life in congenital myasthenia gravis: a case report of two siblings.

THEMATIC POSTER AREA
SESSION 24

THEMATIC POSTER SESSION “OSA AND CENTRAL SLEEP APNOEA II”

Chairs: R.L. Riha (Edinburgh, United Kingdom), B. Kent (London, United Kingdom)
P103 - Comparison on Signs related to Sleep Disordered Breathing among Adult People with Down Syndrome between Two Different Races, Japanese and Scottish.
P104 - Efficacy of Home Single-Channel Nasal Pressure for recommending CPAP treatment
P105 - Baclofen-induced central sleep apnoea
P106 - Impact of a mandibular repositioning device (MRD) on blood pressure in obstructive sleep apnea (OSA) patients noncompliant with continuous positive airway pressure (CPAP)
P107 - Adherence to CPAP Treatment in Slovenia
P108 - Effect of concomitant asthma and obstructive sleep apnea on lung function in non-obese subjects
P109 - The Effect of Positive Airway Pressure Therapy on Serum Insulin-Like Growth Factor-1 and cognitive functions in patients with Obstructive Sleep Apnea Patients
P110 - Estimation of lung functions and assessment of risk of developing Obstructive sleep apnoea in wind instrument players
P111 - Sleep apnea syndrome in Transylvania.
P112 - MicroRNA biomarker profiling for detection of favorable blood pressure responders to CPAP in patients with resistant hypertension and OSA: The HIPARCO-Score
P113 - Assessing the prevalence of undiagnosed obstructive sleep apnoea (OSA) in an acute medical admissions unit in the UK
P114 - Profile of patients with sleep disturbances: Day time sleepiness index
P115 - Optimal time for a controlled titration study in patients with obstructive sleep apnea syndrome treated with non-invasive mechanical ventilation
P116 - Sleep apnea and periodic leg movements in the first year after spinal cord injury
P117 - Gender differences in a large sleep apnea population visiting a sleep clinic in Greece.
P118 - Lung Injury as Assessed by Krebs Von Den Lundgen-6 Biomarker in Patients With Obstructive Sleep Apnea.
P119 - CPAP treatment increases serum vitamin D levels in male obstructive sleep apnea patients
THEMATIC POSTER AREA   SESSION 25  13:45 - 14:45

THEMATIC POSTER SESSION “QUALITY OF LIFE, DEVICES AND OTHER THERAPIES”

Chairs: W. Randerath (Solingen, Germany), J. Santamaria (Barcelona, Spain)
P120 - Sleep deprivation and its consequences on house officers and postgraduate trainees
P121 - Sleep duration is increased but not physical activity in somnolent moderate to severe obstructive sleep apnea patients treated by continuous positive airway pressure.
P122 - Pneumotoning (oropharyngeal and pulmonary exercises, electrical stimulation and manual therapy) to improve the CPAP compliance in patients with Obstructive Sleep Apnea-Hypopnea. A pilot study.
P123 - Influence of auto-CPAP therapy on life quality in patients with BA combined with OSAHS
P124 - Influence of auto-CPAP therapy on polysomnography indices in patients with bronchial asthma and obstructive sleep apnea/hypopnea syndrome
P125 - Effectiveness of Home Single-Channel Nasal Pressure for Sleep Apnea Diagnosis
P126 - Brain stimulation over the dorsolateral prefrontal cortex triggers sleep-dependent memory consolidation
P127 - Inter-rater reliability in polygraphy scoring: quality control in a sleep support service
P128 - Effect of Modafinil and Armodafinil on Excessive Daytime Sleepiness in Patients with Obstructive Sleep Apnea: A Systematic Review and Meta-analysis
P129 - A telephone questionnaire to assess self-reported CPAP compliance in moderate to severe OSA patients. Usefulness and accuracy.
P130 - Are anxiety and depression predictive factors of CPAP treatment adherence in OSAS patients?
P131 - Bench test comparing two automatic CPAP algorithms for treating obstructive sleep apnea
P132 - Comparison of polysomnography test results with demographic characteristics of the patients researched in terms of sleep breathing disorders, a retrospective study
P133 - The role of FRI to predict treatment outcome after mandibular advancement in OSA patients
P134 - Impact of a new mask on patient’s willingness to remain on PAP therapy
P135 - Sleep habits and excessive daytime sleepiness among medical students and its relationship with their academic performance.
P136 - Effectiveness of classical VS vibratory positional therapy. A crossover pilot study
P137 - Evaluation the risk and level of information about obstructive sleep apnea syndrome to drivers - a pilot study in Cluj-Napoca area, Romania
P138 - The prevalence of obstructive sleep apnea syndrome in coal miners and its relation with occupational accidents
P140 - Anthropometric measures and snoring intensity in patients with obstructive apnea
P141 - Comparison of CPAP Treatment versus Surgery on Health Related Life Quality in Moderate OSAS Patients
P142 - The role of sleep in the consolidation of emotional stories

AUDITORIUM   SESSION 26  15:15 - 17:15

PLENARY SESSION “SLEEPINESS: CAUSES, EVALUATION AND MANAGEMENT”

Aims: To bring a state-of-the-art perspective to understanding and managing one of the most common presenting complaints in medical practice. Discussion will primarily be from a sleep medicine perspective, but a holistic approach will be adopted.

Target audience: All physicians practicing in medicine and sleep, psychiatrists, allied health and nursing professionals working in the area of general medicine, psychiatry or sleep.

Chairs: J. Santamaria (Barcelona, Spain), R.L. Riha (Edinburgh, United Kingdom)

15:15 Sleepiness: definition and measurement
   J. Santamaria (Barcelona, Spain) 63

15:45 How does OSAHS cause sleepiness?
   M. Morrell (London, United Kingdom) 64

16:15 Causes of sleepiness in narcolepsy and other central hypersomnias
   R. Khatami (Barmelweid, Switzerland) 65

16:45 Sleepiness: pitfalls and practice
   R.L. Riha (Edinburgh, United Kingdom) 66
### AUDITORIUM  
**SESSION 27**  
**17:30 - 19:00**  
**SPECIALISED SYMPOSIUM “PAEDIATRIC SLEEP AND BREATHING BEYOND THE ADENOIDS AND THE TONSILS: ABNORMALITIES OF RESPIRATORY CONTROL, UPPER AIRWAY FUNCTION AND LUNG DISEASE”**

Aims: To discuss patterns of sleep-disordered breathing and gas exchange abnormalities in subgroups of children with abnormal control of breathing, increased pharyngeal collapsibility or chronic lung disease. Also to discuss indications for nocturnal oxygen administration and/or non-invasive ventilation.

Target audience: Paediatricians, paediatric and adult respiratory physicians, paediatric and adult critical care medicine specialists

**Chairs:** W. De Backer (Antwerp, Belgium), A. Kaditis (Piraeus, Greece)

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<tr>
<td>17:30</td>
<td>Indications for nocturnal oxygen administration and noninvasive ventilation in children with congenital disorders</td>
<td>B. Fauroux (Paris, France)</td>
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<tr>
<td>18:00</td>
<td>SDB and gas exchange abnormalities in the child with syndromic disorder</td>
<td>A. Kaditis (Piraeus, Greece)</td>
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</tr>
<tr>
<td>18:30</td>
<td>SDB and gas exchange abnormalities in the child with Cystic Fibrosis</td>
<td>S. Verhulst (Edegem, Belgium)</td>
<td>69</td>
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### ROOM H  
**SESSION 28**  
**17:30 - 19:00**  
**SPECIALISED SYMPOSIUM “SLEEP, COGNITIVE FUNCTION AND MEMORY: WHAT HAVE WE LEARNT?”**

Aims: This session will provide an overview of the role of sleep in memory consolidation and cognitive function. At the end of the session the attendees will be able to:
- recognise how sleep plays a role in memory consolidation processes;
- explain the impact of sleep deprivation on EEG and cognitive function; and
- summarise the impact of obstructive sleep apnoea on memory and cognitive function.

Target audience: Pulmonary and sleep practitioners, basic scientists and all those working in sleep and breathing.

**Chairs:** R. Khatami (Barmelweid, Switzerland), P. Peigneux (Brussels, Belgium)

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<tr>
<td>17:30</td>
<td>Sleep and memory consolidation processes</td>
<td>P. Peigneux (Brussels, Belgium)</td>
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<tr>
<td>18:00</td>
<td>Sleep EEG and the impact of sleep deprivation and memory</td>
<td>L. Nobili (Milan, Italy)</td>
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<tr>
<td>18:30</td>
<td>Obstructive sleep apnoea: the effect of intermittent hypoxia on cognitive function</td>
<td>M. Morrell (London, United Kingdom)</td>
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### ROOM J  
**SESSION 29**  
**17:30 - 19:00**  
**SPECIALISED SYMPOSIUM “OBESITY, HYPOXIA AND SLEEP-DISORDERED BREATHING: A COMPLEX INTERACTION”**

Aims: Hypoxia is a major biologic signal in obese adipose tissue, but the relationship between intermittent hypoxia and obesity is still unclear. The aim of this session is to provide an update on recent research in both obesity and OSA fields, with special attention to the emerging role of brown adipose tissue, the association of OSA and diabetes, and the metabolic effects of OSA treatment.

Target audience: Respiratory physicians, sleep physicians, diabetologists and basic scientists.

**Chairs:** R.L. Riha (Edinburgh, United Kingdom), F. Barbe Illa (Lleida, Spain)

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<tr>
<td>17:30</td>
<td>Intermittent hypoxia and adipose tissue: the role of brown fat</td>
<td>S. Ryan (Dublin, Ireland)</td>
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<tr>
<td>18:00</td>
<td>Diabetes and OSA: an important association</td>
<td>B. Kent (London, United Kingdom)</td>
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</tr>
<tr>
<td>18:30</td>
<td>Relationship between OSA and non-alcoholic fatty liver disease</td>
<td>M.R. Bonsignore (Palermo, Italy)</td>
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</table>
SPECIALISED SYMPOSIUM “PATHOPHYSIOLOGY OF SLEEP-DISORDERED BREATHING AND NEUROLOGICAL CONTROL OF BREATHING: FROM PHYSIOLOGY TO PATHOLOGY”

Aims: This session will provide an overview of the neural control of breathing. At the end of the session the attendees will be able to:
- explain central respiratory rhythm generation;
- summarise the sleep-relate changes in the control of breathing that lead to central sleep apnoea; and
- summarise the neural control of the upper airway relevant to obstructive sleep apnoea.

Target audience: Pulmonary and sleep practitioners, basic scientists and all those working in sleep and breathing.

Chairs: T. Penzel (Berlin, Germany), J. Verbraecken (Antwerp, Belgium)

08:00 An update on brainstem neural control of breathing
L. Mckay (Glasgow, United Kingdom)

08:30 The control of breathing in central sleep apnoea chemo-sensitivity, apnoeic thresholds, loop gain and all that
W. De Backer (Antwerp, Belgium)

09:00 The neural control of the upper airway in OSA
R. Horner (Toronto, Canada)

ROOM H

SPECIALISED SYMPOSIUM “NONINVASIVE MECHANICAL VENTILATION FROM TRADITIONAL TO NOVEL MODES”

Aims: The aim of this session is to cover the historical evolution of non-invasive ventilation and CPAP through to recently developed modes and applications.

Target audience: Physicians, nurses and technicians.

Chairs: J.A. Hedner (Gothenburg, Sweden), A. Simonds (London, United Kingdom)

08:00 Monitoring the titration of NIV
J.L. Pepin (Grenoble, France)

08:30 Technology: looking into the black box
R. Farré (Barcelona, Spain)

09:00 When NIV does not work…
A. Simonds (London, United Kingdom)

ROOM J

SPECIALISED SYMPOSIUM “CHRONOBIOLOGY AND CIRCADIAN DISORDERS FOR CLINICIANS”

Aims: During this session, basic and clinical aspects of chronobiology for non-specialists will be reviewed.

Target audience: Sleep clinicians.

Chairs: T. Gislason (Reykjavik, Iceland), D. Skene (Surrey, United Kingdom)

08:00 Chronobiology: an introduction
D. Skene (Surrey, United Kingdom)

08:30 The effect of light and melatonin on sleep and mood in the elderly with dementia or depression
E. Van Someren (Amsterdam, Netherlands)

09:00 Roundtable discussion

AUDITORIUM

PLENARY SESSION “NEW PARADIGMS IN INSOMNIA”

Aims: Scientific insights, nosology and therapeutic options for insomnia have been innovated in recent years. The scope of this session is to provide an overview of what’s new in the field. As insomnia disorder is often diagnosed as a comorbidity to sleep-disordered breathing, this theme is particularly relevant for pulmonologists, among other medical specialists.

Target audience: Respiratory physicians, somnologists.

Chairs: D. Riemann (Freiburg, Germany), D. Pevernagie (Heeze, Netherlands)

10:00 Insomnia disorder: a new nosology
D. Riemann (Freiburg, Germany)

10:30 Brain imaging in insomnia
E. Van Someren (Amsterdam, Netherlands)

11:00 Web-based treatment of insomnia
S. Kyle (Manchester, United Kingdom)

11:30 Insomnia and sleep-disordered breathing
J. Verbraecken (Antwerp, Belgium)
**ROOM H**  
SESSION 34  
12:30 - 13:30

**BREAKOUT SESSION “GENETICS IN SLEEP APNOEA”**

**Aims:** This symposium will present current research results on genetics in obesity and sleep disordered breathing. It will present diagnostic tools such as questionnaires, sleep testing, biomarkers, which are useful for phenotyping subjects with sleep disordered breathing. Two large studies on the topic of genetics of sleep disordered breathing will be presented. One is called the SAGIC study and the other is called the ESADA study. Both are international cooperations. The talks will present current status in both studies.

**Target audience:** Researchers and clinicians interested in the pathophysiology and genetics of sleep disordered breathing.

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<th>Time</th>
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<tr>
<td>12:30</td>
<td>Phenotyping sleep apnoea: morphology and obesity</td>
<td>T. Gislason (Reykjavik, Iceland)</td>
</tr>
<tr>
<td>13:00</td>
<td>Phenotyping sleep apnoea: cardiovascular aspects and chemosensitivity</td>
<td>J.A. Hedner (Gothenburg, Sweden)</td>
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**ROOM J**  
SESSION 35  
12:30 - 13:30

**BREAKOUT SESSION “COMPLEX CASES IN SLEEP-DISORDERED BREATHING, AND COMORBIDITIES”**

**Aims:** Sleep-disordered breathing (SDB) is a very common medical sleep problem. Because of its high prevalence it may be associated with other sleep disorders or diseases that are not primarily related to sleep. Moreover, SDB should be differentiated from other sleep disorders with similar symptoms and signs. This session aims to clarify these intricacies based on the presentation of particular cases.

**Target audience:** Respiratory physicians.

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<tr>
<td>12:30</td>
<td>Is it really narcolepsy or a parasomnia?</td>
<td>U. Kallweit (Bern, Switzerland)</td>
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<td>13:00</td>
<td>Sleep apnoea and arousal disorder</td>
<td>D. Pevernagie (Heeze, Netherlands)</td>
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**AUDITORIUM**  
SESSION 36  
14:30 - 16:00

**SPECIALISED SYMPOSIUM “SLEEPINESS AND DRIVING”**

**Aims:** This session will provide an overview of the relationship between impaired alertness, sleep apnoea and the risk for both workplace and road traffic accidents. At the end of the session the attendees will be able to summarise:
- the neurobehavioral effects of sleep deprivations and the countermeasures to reduce the risk of accidents in the general population;
- the risk of traffic accidents in subjects affected by sleep apnoea and the effect of treatment; and
- the European Union new directives on the driving licence in patients with sleep apnoea.

**Target audience:** Pulmonary and sleep practitioners, occupational health professionals and neurologists.

**Chairs:** J.A. Hedner (Gothenburg, Sweden), F. Barbe Illa (Lleida, Spain)

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<tr>
<td>14:30</td>
<td>Sleep apnoea and the risk of traffic accidents</td>
<td>D. Rodenstein (Brussels, Belgium)</td>
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<td>15:00</td>
<td>Sleep apnoea and driving licence: the EU directive</td>
<td>W. McNicholas (Dublin, Ireland)</td>
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<td>15:30</td>
<td>Sleep apnoea and driving: the patients’ perspective</td>
<td>D. Smyth (Dublin, Ireland)</td>
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**ROOM H**  
SESSION 37  
14:30 - 16:00

**SPECIALISED SYMPOSIUM “SLEEP-DISORDERED BREATHING IN NEUROLOGICAL DISORDERS”**

**Aims:** This session will provide an overview on the effects and on the relationship between sleep disordered breathing and different neurological disorders. At the end of the session the attendees will be able to:
- understand the interrelationship between the sleep apnoeas and stroke;
- understand the negative impacts of obstructive sleep apnoeas in epileptic patents; and
- learn about the prevalence, mechanisms and management of sleep disordered breathing in neurodegenerative/autoimmune disorders.

**Target audience:** Pulmonary, sleep practitioners and neurologists.

**Chairs:** P. Peigneux (Brussels, Belgium), L. Nobili (Milan, Italy)

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<td>14:30</td>
<td>SDB and stroke</td>
<td>O. Parra Orgaz (Barcelona, Spain)</td>
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<td>15:00</td>
<td>SDB and epilepsy</td>
<td>L. Nobili (Milan, Italy)</td>
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<td>15:30</td>
<td>SDB in neurodegenerative/autoimmune disorders</td>
<td>J. Santamaria (Barcelona, Spain)</td>
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SPECIALISED SYMPOSIUM “MILD OSA: IS IT REALLY A RISK?”

Aims: The session will focus on the independent relationships between mild OSA and cardiovascular and metabolic comorbidity, in addition to management in this setting.

Target audience: Clinicians, nurses, allied professionals.

Chairs: M.R. Bonsignore (Palermo, Italy), B. Buyse (Leuven, Belgium)

14:30 Cardiovascular complications of mild OSA  
M.R. Bonsignore (Palermo, Italy)  

15:00 Evidence of metabolic disturbance in mild OSA  
B. Kent (London, United Kingdom)  

15:30 Outcome of treatment of mild OSA  
J. Verbraecken (Antwerp, Belgium)  

PLENARY SESSION “FUTURE DIRECTIONS IN THE TREATMENT OF SLEEP-DISORDERED BREATHING”

Aims: The treatment of sleep related breathing disorders is evolving. CPAP maybe still the Gold standard but local therapies are often efficient alternatives with fewer burdens on the patients. This symposium will position the different treatment options and focus on prediction and personalised approaches.

Target audience: All healthcare professionals active in the field of sleep and breathing, with a special focus on those who effectively have to make the treatment options.

Chairs: A. Simonds (London, United Kingdom), W. McNicholas (Dublin, Ireland)

16:15 Surgical interventions and SBD  
N. De Vries (Amsterdam, Netherlands)  

16:30 Is CPAP still the Gold Standard?  
D. Pevernagie (Heeze, Netherlands)  

16:45 Personalised approaches for the treatment of SBD  
R.L. Riha (Edinburgh, United Kingdom)  

17:00 Focus on prevention and treatment in childhood  
A. Kaditis (Piraeus, Greece)
Let THE ERS HANDBOOK OF RESPIRATORY SLEEP MEDICINE open your eyes

The ERS Handbook of Respiratory Sleep Medicine
Edited by Anita K. Simonds and Wilfried de Backer
ISBN 978-1-84984-023-1

The 8 chapters of the ERS Handbook of Respiratory Sleep Medicine cover all aspects of adult and paediatric respiratory sleep medicine, from physiology and anatomy to diagnosis and treatment. Editors Wilfried de Backer and Anita K. Simonds have brought together leading pulmonologists to produce a thorough yet easy-to-read reference to this important area of respiratory medicine. It is a valuable resource for any practitioner of sleep medicine, whether they come from a respiratory, neurology, cardiology, dental or ENT background.

Accredited by EBAP for 8 hours of European CME credit.
Thematic Poster Session “Chronic Disorders”

P1 Observational sleep study on patients with non-cystic fibrosis bronchiectasis - Preliminary results
Newton Santos Faria Junior 1, Ismael Dias Souza 2, Nadu Apostolico 1, Igor Bastos Polonio 1, José Gustavo Barian Romaldini 1, Déborah Madeu Pereira 1, Vera Lúcia dos Santos Alves 1, Luís Vicente Franco Oliveira 2, Roberto Stirbulov 1
1 Surgery Research, Medicine School of Santa Casa de Sao Paulo - FCMSCSP, Sao Paulo, Brazil
2 Rehabilitation Sciences Master and Doctoral Degree Program, Nove de Julho University - UNINOVE, Sao Paulo, Brazil

Introduction: Bronchiectasis represent a chronic disorder characterized by permanent, irreversible, abnormal dilation of the bronchi and bronchioles. Due to irreversible dilation of the bronchi, the presence of secretions and airflow obstruction, subjects with bronchiectasis may be predisposed to hypoxemia during sleep or symptoms that might lead to arousal. Therefore, we describe sleep characteristic through the standard overnight polysomnography.

Methods: An observational study was carried out involving 21 patients with non-cystic fibrosis bronchiectasis at the Sleep Laboratory of the Nove de Julho University in the city of Sao Paulo, Brazil.

Results: Mean age was 51.6 ± 15.1 years; 57.1% of the patients were female and mean body mass index was 23.9 ± 3.7 kg/m². Mean income was 1.3 times the minimum wage and only 28.6% had completed high school. The subjects and there was a predominance of obstructive lung disease. Mean total sleep time was 282.7 ± 69.5 min, with sleep efficiency of 79.2 ± 29.2%. The mean sleep apnea and hypopnea index was 3.7 ± 4.9 events/hour. The number of arousals was 5.6 ± 2.9/h. The oxymoglobin desaturation index was 5.9 ± 8.9/h and minimum oxyhemoglobin saturation was 84.5 ± 5.8%, during sleep.

Conclusion: In our study, patients with non-cystic fibrosis bronchiectasis had a changes in sleep quality.

P2 Overlap of obstructive sleep apnea and bronchial asthma: effect on asthma control
Rasha Daabas 1, Mohamed Zidan 1, Heba Gharraf 1
1 Chest diseases, Faculty of medicine, Alexandria University, Egypt

Obstructive sleep apnea (OSA) and asthma are highly prevalent respiratory disorders that share several risk factors and are frequently comorbid. Multiple mechanisms have been postulated to explain this frequent coexistence, which is recently referred to as the “alternative overlap syndrome”. Moreover, OSA is generally linked to worse asthma outcomes.

Objectives: First, to assess the prevalence of OSA in a group of asthmatics. Second, to evaluate the potential risk factors underlying the development of OSA in these patients. Third, to determine the effect of this overlap on asthma control.

Methods: Polysomnography was done for 30 asthmatics and 12 healthy controls. Demographics, spirometry, comorbidities and clinical data were collected. Asthma control was assessed according to the latest GINA guidelines.

Results: OSA defined by an AHI of ≥5 events/h was present in 18(60%), asthmatics and 2(17%) controls. Linear regression analysis revealed that high body mass index (BMI), coexistent gastroesophageal reflux disease (GERD) and asthma severity (FEV1%) are significant independent predictors for the development of OSA in asthmatics (p = 0.03, 0.034, and <0.001 respectively). Moreover, the presence of OSA in asthmatic patients was significantly associated with worse asthma control (p < 0.001).

Conclusion: A high index of suspicion is warranted for the overlap of OSA and asthma, particularly in the presence of obesity, GERD, and in patients with severe asthma. Individualized therapy addressing these moderating factors is warranted for optimal health outcomes. Recognition and treatment of OSA in asthmatics is an important element in improving asthma control.

P3 Prevalence of obstructive sleep apnea among patients with coronary artery disease in Saudi Arabia
Siriwai 1, Muath Alsharif 1, Mohammed Albaini 1, Murad Baabdal 1, Haneen Almotary 1, Nabil Alama 2, Layth Mimish 2, Adil Alsulami 2, Muntasir Abdelaziz 3
1 Sleep Medicine and Research Center, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
2 Internal Medicine Department, King Abdulaziz University Hospital, Jeddah, Saudi Arabia
3 Department of Respiratory Medicine, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Background: Despite the association between obstructive sleep apnea (OSA) and coronary artery disease (CAD), few studies have investigated this issue in Saudi Arabia.

Objectives: This study aimed to identify the prevalence of OSA among CAD patients.

Subjects and methods: This was a cross-sectional (descriptive) study conducted at King Abdul-Aziz University Hospital in Jeddah, Saudi Arabia from April 2012 to December 2013. All consecutive patients referred to the cardiac catheterization lab for coronary angiography who exhibited evidence of CAD were included in this study. This study was conducted in two stages. During the first stage, each participant was interviewed individually. The administered interview collected data pertaining to demographics, comorbidities, and the STOP-BANG questionnaire score. The second stage of this study consisted of a diagnostic overnight polysomnography (PSG) of 50% of the subjects at high risk for OSA according to the STOP-BANG questionnaire.

Results: Among the patients with CAD (N = 156), 126 (82%) were categorized as high risk for developing OSA. PSG was conducted on 48 patients. The estimated prevalence of OSA in the study sample was 57%. Approximately 61% of the documented sleep apnea patients suffered from moderate to severe OSA.

Conclusion: This local study concurs with reports in the literature indicating that OSA is very common among CAD patients.

P4 Pulmonary function evaluation and OSAS in Acromegalic syndrome
Tullia Villani 1, Michela Mordenti 1, Nicoletta Mecca 2, Raffaella luorio 2, Valeria Mercuri 1, Patrizia Gargiuolo 2, Alessia Steffanina 1, Matteo Bonini 1, Paolo Palange 1
1 Department of Public Health and Infectious Diseases, Sapienza; University, Rome, Italy
2 Sperimental Medicine, Endocrinology Institut, Sapienza University, Rome, Italy

Background: Acromegaly is an acquired endocrinology disease related to excessive production of growth hormone (GH) by a tumor hipofisis, causing a progressive somatic disfigurement and changes of several organs. The changes in anatomical facial of soft-tissue thickening, of bone segments, that due to hypercralliasibility of the hypopharyngeal walls and of hypertrophy of the tongue can give rise to OSAS in patients with acromegaly diagnosis. The alteration of the respiratory function is caused by anatomical and mechanical changes in the chest.

Objectives and Methods: We have employed 19 patients affected with acromegalic syndrome, 6 male and 11 female, mean age 60 years old; of which 19 patient 10 have normal IGF-1 value whereas 9 have altereted IGF-1 values. The anthropometric measurements and score evaluated are: BMI, neck circumference, Mallampati index, ESS. The patient are subjected to different exams: serum level of GH and IGF-1, ABGs, spirometry, DLCO, home cardiorespiratory monitoring (AHI, AI, ODI).

Results: In the population study OSAS is represented in 73.6% of the cases, of which 42.8% affected by mild grade (AHI 11.4 ± 1.4; AI 2.2 ± 2.8, ODI 10.8 ± 0.6), by 28.5% moderate grade and by 48.5% severe grade (AHI 42.4 ± 12.4; AI 21.6 ± 20.8, ODI 43.3 ± 11.7). We have observed a proportionality direct between serum GH level and DLCO (115.6 ± 15.7) and DLCO/VA (111 ± 2.12).

Conclusion: In acromegalic population the OSAS disorder is common, probably related to anatomical alterations caused by stimulation of high serum GH and IGF-1 level. The same pathophysiological pathway could justified the increment of alveolar hyperinflation.
ABSTRACTS

P5 Different effect of transient and chronic hypoxia on the L-arginine pathway
Thamer Molnar 1, Bela Faludi 2, Lajos Nagy 2, Sandor Keki 1, Zsolt Illes 1, Istvan Ruzics 5
1 Anesthesiology and Intensive Care, University of Pecs, Pecs, Hungary
2 Neurology, University of Pecs, Pecs, Hungary
3 Applied Chemistry, University of Debrecen, Debrecen, Hungary
4 Neurology, Odense University Hospital, Odense, Denmark
5 Pulmonology, University of Pecs, Pecs, Hungary

Asymmetric and symmetric dimethylarginines (ADMA and SDMA, respectively) are markers of endothelial dysfunction. Hypoxia facilitates protein arginine methyltransferase. We compared the serum level of L-arginine, ADMA and SDMA in two different cohorts: patients with OSA as transient and COPD as chronic hypoxia. Methods: A total of 65 patients with OSA and 45 patients with COPD were investigated. Venous blood was taken for evaluation of biomarkers (L-arginine, ADMA, SDMA and hsCRP). All markers were compared with normal controls (NC, n=64). Beside, polysomnography for OSA and blood gas analysis for COPD patients was recorded. Results: L-arginine was significantly higher in OSA compared to COPD. Both, ADMA and SDMA were significantly higher in COPD compared to OSA. All markers were significantly higher in patients compared to NC. In OSA patients, a significant positive correlation was found between SDMA and the lowest measured O2 saturation (SpO2). After selecting patients with OSA based upon apnoe-hypopnoe index (AHI), a significant positive correlation was found within hsCRP and L-arginine in patients with AHI<15. While in patients with AHI>15, ADMA and the lowest SpO2 recorded by polysomnography showed a significant positive correlation. In contrast, a significant negative correlation was found between ADMA and capillary partial oxygen pressure in patients with COPD. Conclusions: Both types of hypoxia are associated with elevated L-arginine-pathway markers. While lower SDMA is more informative for episodic hypoxia in OSA, ADMA is proportional to depth of chronic hypoxia in COPD. The precursor molecule L-arginine might express a protective role against inflammation in severe transient hypoxia.

P6 Obstructive sleep apnea (OSA) and excessive daytime sleepiness (EDS) are independently associated with depression in a community based population of Australian men.
Carol Lang 1,2, Sarah Appleton 1,3, Andrew Vakulin 3,4, Douglas McEvoy 3, Gary Wittert 1,5, Sean Martin 5, Janet Grant 5, Anne Taylor 6, Nick Antic 3, Peter Catcheside 3, Robert Adams 1
1 The Health Observatory, Discipline of Medicine (The Queen Elizabeth Hospital Campus), University of Adelaide, Adelaide, Australia
2 Basil Hetzel Institute for Translational Health Research, The Queen Elizabeth Hospital, Adelaide, Australia
3 Adelaide Institute of Sleep Health, Department of Medicine (Repatration General Hospital Campus), Flinders University, Adelaide, Australia
4 NHMRC Centre for Integrated Research and Understanding of Sleep (CIRUS), University of Sydney, Sydney, Australia
5 Freemason’s Centre for Men’s Health, Discipline of Medicine, University of Adelaide, Adelaide, Australia
6 Population Research Outcome Studies, Discipline of Medicine, University of Adelaide, Adelaide, Australia

An association between OSA and depression is uncertain. Using sectional and longitudinal analyses we examined the hypotheses that EDS and previously diagnosed and undiagnosed OSA are associated with depression prevalence and incidence in a male population-based cohort. Depression was assessed using Beck’s Depression Inventory/Center for Epidemiological Studies Depression Scale in 1875 adult men at 2 time points 5 years apart. A random sample of men without previously diagnosed OSA (n = 857) undertook at home polysomnography (PSG) and completed the Epworth Sleepiness Scale questionnaire. 1680 men without depression at baseline were included in the longitudinal analysis of incident depression. Prevalently undiagnosed severe OSA (OR 1.9, 95% CI 1.0-3.7) and previously undiagnosed severe OSA (AHI ≥30) (OR 2.9, 95% CI 1.1-8.6) were significantly associated with depression onset. Other PSG parameters were not associated with depression prevalence or incidence. Severe OSA and EDS are independently associated with depression prevalence and onset in men. Clinicians should recognise the risk of OSA in men recently diagnosed with depression.

P7 Sleep disorders, social status and self-rated health in Russian female population
Valery Gafarov 1, Dmitry Panov 1, Elena Gromova 1, Igor Gagulin 1, Almira Gafarova 1
1 Collaborative Laboratory of Cardiovascular Diseases Epidemiology SB RAMS, FSBI Institute of Internal and Preventive Medicine SB RAMS, Novosibirsk, Russian Fed.

Purpose: To explore the prevalence of sleep disorders (SD) depending on social status and its relation with awareness and attitude towards the health in female population aged of 25-64y in Russia/Siberia.

Methods: Under the third screening of the WHO program “MONICA-psychosocial” random representative sample of women aged 25-64y (n=870) were surveyed in Novosibirsk. Estimation of sleep was assessed by the test Jenkins Sleep Questionnaire (JSQ).

Results: The prevalence of SD in female population aged 25-64y was 65.3%. 36.3% of women with SD have self-reported negative health as “poor” (χ²=85.32 df=16 p<0.001). More than 90% persons with SD have health complaints but taking care of their health is insufficient (77.3%; χ²=18.28 df=8 p<0.05). With increasing levels of SD women more likely continue to work if caught a cold previously (poor sleep-56.5%, good sleep-37.5%; χ²=15.91 df=4 p<0.05).

Conclusions: The prevalence of sleep disorders in female population 25-64y is high - 65.3%. SD affected both white and blue collar equally and it indicates high strain at job and family-career intrapersonal conflict in married women as well as low awareness about the health.

P8 The relationship between excessive daytime sleepiness, functional capacity and autonomic modulation in adult controlled asthmatics
Renata Trimer 1, Katelyne T L Zangrando 1, Humerto Lanzotti 1, Daniela Andaku Olesncki 1, Flavia Mazzoli 1, Ramona Cabiddu 1, Audrey Borghi-Silva 1
1 Physiotherapy, Federal University of São Carlos, SAO CARLOS, Brazil

Background: Excessive daytime sleepiness (EDS) is a particularly frequent complaint in patients with asthma and has a negative impact on quality of life and work performance. Daytime sleepiness is often the result of poor sleep quality and we hypothesized that it could reflect in cardiac autonomic function. The aim of our study was evaluate the relationship between EDS, respiratory muscle strength, estimated by functional capacity and autonomic control.

Methods: 24 adult controlled asthmatics (29±9 years) were screened. Epworth Sleepiness Scale score (ESS); Maximum inspiratory pressure (MIP) and estimated functional capacity using the Duke Activity Status Index (DASI) were assessed. Heart rate (HR) and R-R interval were recorded at rest and spectral indices of heart rate variability (HRV) were calculated.

Results: Among all subjects, 11 subjects (55%) had ESS >10. The level of ESS was negatively correlated with MIP (r=-0.51), with estimated V02(r=-0.46) and LF/HF ratio (r=-0.59) and LF/HR (-0.71).

Conclusions: Excessive daytime sleepiness is frequent in asthmatics and may reflect poor estimated functional capacity and lower autonomic control.

**P9 Gender differences of predictors of severity of obstructive sleep apnea**
Alexandru Corlateanu 1, Victoria Sircu 1, Victor Botnaru 1
1 Respiratory Medicine, State University of Medicine and Pharmacy Nicolae Testemitanu, Chisinau, Moldova

**Background:** In spite of many studies, the reason for the gender-related differences in obstructive sleep apnea prevalence is not entirely understood. The aim of the study was to evaluate and to identify the main predictors of severity of obstructive sleep apnea in patients according to the gender.

**Methods:** 101consecutive patients with obstructive sleep apnea were enrolled into the study. Age, gender, anthropometric and polygraphic data were thoroughly analysed. In all subjects daily sleepiness was assessed by Epworth Sleepiness Scale.

**Results:** The cohort consisted of 29 women with mean age 61.8 ± 6.3 years and 72 men with mean age 54.5 ± 13.1 years. Patients in male group had the similar severity of obstructive sleep apnea syndrome: Apnea–Hypopnea Index (AHI) was 20.2 ± 15 events per hour versus 28.1 ± 20.1 (p= 0.07). Females had higher Body Mass Index (BMI) and more comorbidities. The forward stepwise regression analysis shows that the age, Epworth Sleepiness Scale score and abdominal circumference are the important predictors of severity of obstructive sleep apnea in men, which explain 56% of the AHI (p<0.01). In women, BMI and abdominal circumference explain 41% of AHI.

**Conclusion:** Age, Epworth Sleepiness Scale score and abdominal circumference were found to be the major determinants of severity of obstructive sleep apnea in men, meanwhile BMI and abdominal circumference in women.

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**P10 Bilateral congenital choanal stenosis and changes in sleep: A case report**
Maria Helena Araujo-Melo 1, Denise Duprat Neves 1, Lucia Joffily 1, Débora Petrunaro Migueis 1, Lucas Neves de Andrade Lemes 2, Fernando Andreiuolo Rodrigues 1
1 Gaffrée Guinle University Hospital, Federal University of the State of Rio de Janeiro UNIRIO, Brazil, Rio de Janeiro, Brazil
2 Department of Physiology, University of Thessaly School of Medicine, Larissa, Greece

**Introduction:** Congenital choanal stenosis as risk factor for the syndrome of upper airway resistance (UARS) is not well described. Objectives Report case of choanal stenosis with Upper Airway Resistance Syndrome and disorders sleep microstructure. Methods and Results: Man 22 years with allergic rhinitis and insomnia, adenoid face, tonsils 2 + / 4 Brodsky Classification, Modified Mallampati 1, high-arched palate. Obese, 40cm of neck circumference, 98cm of waist circumference. Nasal endoscopy with bilateral choanal stenosis. Epworth Sleepiness Scale 2. In polysomnographically, there were null AHI, 9/h of respiratory disturbance index, by elevated RERA index. No oxymoglobin desaturation, reduced sleep efficiency, reduced percentage of REM sleep. Increased arousal rate (16/h), nasal cannula with permanent flattening of the curve and cyclic alternating pattern in stage 2 non-REM sleep. Comments. The consequence of this adaptation to airflow limitation in the upper airway is noticed by the adenoid face, neuromuscular and cognitive changes. The nasal cavity is not well defined as a risk factor for OSA, it is not related to significant oxymoglobin desaturation, or apnea/hypopnea, but makes the adaptation of CPAP better. The microstructure of sleep shows arousals and CAP. The later is an event of cerebral electrical activity with periods of activation and inhibition during the second phase of non-REM sleep. It’s possible that the increased number of awakenings, compromises the quality and quantity of REM sleep, causing a possibly non-restorative sleep and sleep fragmentation. CPAP inclusion in AASM manual may increase PSG sensitivity and diagnosis neglected disorders.

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**P11 Phenotypes of Comorbidity in OSAS patients**
George Vavougios 1, George Natsios 1, Chaido Pastaka 1, Sotirios Zarogiannis 2, Konstantinos Gougoulisani 1
1 Department of Respiratory Medicine, University of Thessaly School of Medicine, Larissa, Greece
2 Department of Physiology, University of Thessaly School of Medicine, Larissa, Greece

**Background:** Several comorbidities commonly either develop or coexist with OSA. The aim of our study was to detect predictors of comorbidities in OSA patients.

**Methods:** We performed phenotyping on 879 OSA patients with a polysomnographically determined AHI over 15. Dimension reduction via Categorical Principal Component Analysis (CPCA) was performed on the items of the Charlson Comorbidity Index (CCI). A reduced dimension solution with an in increase in variance explained was elected for two step clustering (TSC) employing the Schwarz - Bayesian Criterion as the clustering rule. One Way ANOVA with Bonferroni correction and Classification Trees with the ECHAID algorithm were used to detect differences between clusters. Multinomial Regression Analysis (MRA) was used to detect independent predictors of cluster membership.

**Results:** CPCA revealed that Cardiovascular Disease (CVD), Age, Cerebrovascular Events and COPD explained 68% of the variance associated to comorbidity compared to 36% of the full CCI (Figure 1). The TSC produced 3 clusters with a 0.9 Average Silhouette. Clusters differed significantly in Age, AI, CCI, BMI, ESS, daytime and minimum SaO2but not AHI or DI. Age, BMI and daytime SaO2independently predicted cluster membership (Likelihood Ratio Test p<0.0001). Cluster 1 (n=440) included subjects with no CVD, COPD or hypertension. Cluster 2 (n=53) included COPD patients, the majority (n=41) of which had CVD and/or hypertension. Cluster 3 (n=387) included patients with CVD and/or hypertension (Figure 3).

**Conclusion:** CVD, COPD, BMI, daytime SaO2and Age were determined as significant features of underlying comorbidity phenotypes in our population of OSAS patients. Notably, OSAS clinical features were not predictive of phenotype membership.

CPCA with 63% Variance explained in a 2D solution

Classification Tree employing the exhaustive CHAID (ECHAID) algorithm
P12 Age specific long term reduction of blood pressure under CPAP treatment in hypertensive patients with obstructive sleep apnea syndrome

Oana Claudia Deleanu 1, Andra Elena Malaut, Anca Donoaica, Ruxandra Ulmeanu 2, Miruna Mihaela Micheu 4, Florin Dumitru Mihaltan 1
1 Pneumology, University of Medicine and Pharmacy Carol Davila, Bucharest, Romania
2 Pneumology, 3rd ward, Institute of Pneumology Marius Nasta, Bucharest, Romania
3 Pneumology, Faculty of Medicine, University of Oradea, Oradea, Romania
4 Cardiology, Clinical Emergency Hospital, Bucharest, Romania

**Introduction:** In hypertensive (HT) patients with obstructive sleep apnea (OSA) reduction of blood pressure (BP) under CPAP is controversial, often reported using sphygmomanometer (SM), without long term follow up.

**Aims:** To study difference between young (<60years) vs elderly(≥60years) patients with OSA and HT regarding BP values, measured by SM and ABPM after 3 and 6 months of CPAP.

**Method:** We excluded patients with hypoventilation syndromes, respiratory dysfunctions, secondary HT, modified HT treatment during study, noncompliance (SPSS 17: Chi test, T-test).

**Results:** We studied remaining 15 patients: 7 young, 8 elderly, without significant differences regarding AHI and somnolence. Measured with SM, elderly had reduction in systolic BP (SBP-connected with age) and diastolic BP (DBP) after 3 months (from 141.2±8.3 to 123.6±15.9mmHg, p=0.019, respectively from 80.8±9.2 to 66.2±7.4mmHg, p=0.006) without any differences after 6 months of CPAP. Measured by ABPM elderly patients had a significant decrease only in DBP minimum nocturnal values from 55.3±6.3 to 47.5±5.7mmHg after 3 months, p=0.021. In young patients DBP measured by SM was significantly lower after CPAP (from 85.0±12.5 to 71.4±6.9mmHg, p=0.028 after 3 months, to 70.0±7.0mmHg, p=0.038 after 6 months), without differences regarding (SBP) or in ABPM measurements. No modification regarding the dipper pattern at 3 or 6 months.

**Conclusion:** Regardless comorbidities, there was a significant reduction in DBP in both young and elderly OSA patients under CPAP only in SM measurements which is not so reliable in terms of cardiovascular risk as ABPM.

P13 Sleep in North Indian patients of Chronic Obstructive Pulmonary Disease (COPD)

Dhruva Chaudhry 1, Rakesh Tank 1, Sunny Virdi 1
1 Pulmonary and critical care medicine, PGIMS, Rohtak, India

**Objectives:** Primary: Sleep pattern in patients of Chronic Stable COPD. Secondary: Presence and correlation of Obstructive Sleep Apnea (OSA) in COPD. Study Design: Case Control

**Material & Methods:** 40 Patients of COPD as per GOLD staging (20 each of moderate and severe severity) and 10 age and gender matched healthy controls were included with exclusion of known cases of OSA, hypothyroidism, diabetes, heart failure & hypertension. Epworth sleepiness score (ESS), Berlin’s score, anthropometry, metabolic profile and blood gases were measured. OSA was diagnosed as per AASM guidelines with Apnea hypopnea Index (AHI) ≥ 5.

**Results:** 25% of COPD patients had OSA. ESS, Berlin’s Score and Modified Mallampati Grade (MMG) were significantly higher in patients with OSA. Sleep architecture was distorted in COPD patients with increased awakenings & decreased efficiency. Severity of respiratory events had linear correlation with the severity of COPD.

**Conclusion:** Sleep architecture is distorted & less efficient in patients COPD. OSA is not uncommon in these patients. ESS, Berlin’s score and MMG are good tools for screening of OSA in COPD.

P14 Ellagic acid ameliorates bleomycin induced pulmonary fibrosis in wistar rats.

Saba Saba, Sheikh Raisuddin 1
1 Department of Toxicology, Jamia Hamdard University, New Delhi, India

**Bleomycin (BLM) a cytotoxic antibiotic is widely used in cancer chemotherapy. Among the various side effects of BLM, lung fibrosis is a major deterrent in its clinical use. Ellagic acid (EA) showed protective action. We wanted to study the prophylactic effect of EA on the toxicity profile of BLM. Wistar rats were exposed to standardized dose of BLM (10 mg/kg b.w., intratracheally) and EA (15mg/kg b.w., orally) for 14 days of treatment schedule. Lung fibrosis was measuring by checking the level of hydroxyproline which was supported by massive trichome analysis of the lung samples to check the level of fibrosis. Antioxidant profile of lungs was also measured along with histopathological examination of tissues. In exposed animals, there was a significant increase in the level of hydroxyproline level as a mark of collagen. Various antioxidant enzymes activities such as GPx, GR, GST, SOD and CAT decreases when exposed to BLM which was significantly restored by EA pretreatment. EA treatment modulates enhanced NO production, MPO activity in rat lungs exposed to BLM. Treatment of EA also caused significant decrease in LPO and increase in GSH content in rat lungs. It was also revealed that there was discernible edema formation in lungs of treated animals which was subsequently attenuated by EA. Massive trichome and histological findings strongly support the onset of pulmonary fibrosis and biochemical alterations showing changes such as inflammation and fibrosis in BLM exposed rat lungs which was attenuated by EA resembles to control.BLM exposure showed a toxic effect and administration of EA showed protection.

P15 Mandibular Movements during Cheyne Stokes Breathing in Heart Failure

Jean Benoît Martinot 1, Valérie Cuthbert 1, Stéphane Denison 1, Hervé Guénard 2, Jean Louis Pépin 2
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During Cheyne Stokes Breathing(CSB) in patients with heart failure (HF), central apnea or hypopnea(CAH) alternate periodically with a crescendo/decrescendo pattern of breathing(CDB). Respiratory...
P16 Daytime sleepiness in patients with chronic obstructive pulmonary disease
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Background: Patients with COPD report subjective sleep difficulties concerning initiating and maintaining sleep, diminished time, efficiency and sleep quality, daily sleepiness that interrupts everyday activities. This research was aimed to identify COPD patients with subjective excessive daytime sleepiness and relation with their anthropometric characteristics and lung function. Sleep disturbances can be consequence of COPD, as the underlying lung disease, but can suggest possible coexistent sleep apnea-hypopnea syndrome (SAHS).

Method: Forty patients with stable COPD underwent spirometry, body weight and height measurement, body mass index (BMI) and neck circumference. Serbian version of Epworth sleepiness scale (Kopitovic I. et al, Sleep Breath.2011 Dec;15(4) ) was administered to all, with ESS >10 considered as signifying excessive daytime sleepiness.

Results: We recruited 40 COPD patients (Global Initiative - GOLD stage I (12.5%), II (45%), III (30%) and IV (12.5%)), 19 women (47.5%) and 21 men (52.5%), average age 67±9.7 years; BMI 28.01±6.72; neck circumference 39.51±4.17cm. Group A (29 patients; 72.5%) had Epworth sleepiness score and Group B (11 patients; 27.5%) had score ESS >10 (ESS from 11 to 15 in 15% and ESS >16 in 12.5% of all COPD patients). There was no statistically significant correlation between groups in age, sex, BMI, neck circumference, FEV1 and Epworth sleepiness score.

Conclusion: Further investigations of possible predictors for SAHS are required to add to Epworth sleepiness score in screening COPD patients with possible coexisting SAHS.

P17 The Relationship between Substance Abuse (tobacco and opium) and Chronic Obstructive Pulmonary Disease in Hospitalized Patients
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Backgrounds: Holistic care for patient involves seeing the patients not just as a lung organ for example but as a person, and treating both body and psyche; otherwise desired treatment might not be reached. The purpose of this study was to assess amount and pattern of substance abuse among hospitalized Chronic Obstructive Pulmonary Disease patients to be able to better plan a treatment program for them.

Methods: 90 patients with Chronic Obstructive Pulmonary Disease participated in this cross-sectional and analytic research project. Information was entered into the computer and analyzed with SPSS 16 statistical software.

Results: Mean age of participants was 66 years of which 90% were male and 84% were married. 37.9% smoked at the time of research and 51.2% lit their cigarette in the first 5 minutes upon waking up. Most patients (50.9%) started using opium at 20-39 years of age, 71% used opium regularly. Of all opium users, 64.8% smoked it and 35.2% used it orally. Pattern of opium use and number of hospitalizations were related. Correlation between job and pattern of abuse of substances was found.

Discussion: Most patients despite having progressive pulmonary disease continue to smoke and use opium, so they have been noncompliant with treatment and have required multiple hospitalizations. As a result, comprehensive treatment of these patients including both pulmonary disease and addiction need to be addressed.

P18 Severity of Anxiety Disorders in Patients with Chronic Obstructive Pulmonary Disease
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Background: Patients with chronic physical diseases sometimes show increased loss of function. These patients need more care. Anxiety is a well-known symptom that is usually prevalent among Chronic Obstructive Pulmonary Disease patients that can prolong exacerbations of disease and increase the risk of hospitalization. The purpose of this study was evaluation of severity of anxiety in mentioned patients, prevalence and awareness of symptoms and appropriate treatment strategy in a timely fashion.

Materials and Methods: This was a cross sectional study at Masih Daneshvari Hospital. 141 patients entered to the project with informed consent and by accessible method and they filled demographic information and Hamilton anxiety and depression questionnaires. Information analyzed by SPSS-16. Results: 68% were above 60 years. 22% were female and 78% were male. 89% were married. 38% were self employed. 28% were unemployed. 72% had history of smoking. 46% had history of substance abuse. 19.6% had mild anxiety disorder. 16.8% had mild to moderate and 49% had moderate to severe anxiety disorder.

Conclusions: Research in recent years show that infectious diseases in humans may also accompany with mental changes. According to these findings many chronic diseases such as Chronic Obstructive
Pulmonary Disease may be the cause of anxiety and depression which result in weakness of the patient and taking no action for self-care and improvement, which lead to relapse of the disease and more vulnerability and they would be prone to increased impact of illness. Therefore evaluation of patients, anxiety is worthy for improving his or her disease.

Introduction: Approximately 80% of patients with chronic kidney disease complain about sleep disorders, which is a much higher percentage than in the general population. Excessive daytime sleepiness is the third most frequent complaint in these patients, and it is significantly associated with a higher risk of sleep apnea. The aim of this study was to assess the presence of daytime sleepiness in patients with end stage renal disease (ESRD) who were undergoing diurnal hemodialysis.

Materials and Methods: The Epworth Sleepiness Scale (ESS) was applied to patients with ESRD who underwent diurnal hemodialysis in the Centro de Nefrologia da Zona Norte in Sao Paulo, Brazil.

Results: The mean age of the 20 patients evaluated was 44 ± 11 years and the mean BMI was 28.0 ± 6.0. The average score of MGQOL 15 was 27.8 and the average Epworth Sleepiness Scale was 9.73, and the Berlin questionnaire was positive in only one patient. Regarding polysomnographic variables highlights the average AHI was 19.82 ± 20.16 percentage of REM sleep average was 13.16 ± 4.16.

Conclusion: Observing our results we can highlight a significant drop in oxyhemoglobin saturation, reduced REM time, increased NREM stage in two patients, a significant increase in AHI and a high risk for OSA by clinical questionnaire Berlin sleep. Only one patient had abnormal ventilatory pattern by spirometry.

Keywords: Sleep, Renal Dialysis, Sleepiness, Chronic Renal Insufficiency.

P20 Negative expiratory pressure test as screening to obstructive sleep apnoea in Myasthenia Gravis patients.

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Background: Expiratory flow limitation (EFL) has been described as a transient or sustained decrease in expiratory flow during the application of the NEP test. The aim of this study was to describe the application of a new NEP method for assessing EFL during spontaneous breathing to identify myasthenia gravis patients at risk for OSA.

Materials and Methods: Upper airway collapsibility was evaluated by measuring decreases in flow and expired volume during the first 0.2s after the application of NEP at 06 and 10 negative cmH2O. The NEP test was easily applied to evaluate EFL caused by upper airway obstruction in patients with OSA.

Results: 15 clinically stable patients with MG (13 females) were evaluated. Of these 15 completed the pulmonary function tests and answered questionnaires of quality of life MGQOL 15. The average score of MGQOL 15 of these 15 patients was 27.8 and the average Epworth these 15 patients was 9.73 the clinical questionnaire Berlin was positive in only one patient. The mean age of the 20 patients was 41 ± 11 years and the mean BMI was 29.3 ± 5.4. Regarding polysomnographic variables highlights the average AHI of 15 patients was 17.8 (0.8 – 66.7) percentage of REM sleep average was 12.6 ± 4.02. FVC (%) found is 87%. The values for the test NEP were 29.4 ±12.5, and 27.4±14.6 V0.2/6s and V0.4/10s respectively.

Conclusion: The NEP test can be a new method to assessing expiratory flow limitation during spontaneous breathing used to identify in MG patients at risk for obstructive sleep apnoea, detecting upper airway collapsibility.

P21 Sleep, lung function and quality of life in patients with myasthenia gravis clinically stable.

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Introduction: The presence of sleep disorders in Myasthenia gravis (MG) patients, can negatively affect the ventilation and the mechanics of breathing in wake and sleep. Some studies have shown a poor quality of sleep, excessive daytime sleepiness and the presence of sleep disordered breathing, while others did not observe a positive correlation. The aim of the study was to investigate sleep quality, lung function, ventilatory patterns, disease severity, clinical status and quality of life in clinically stable MG patients.

Method: We propose a cross sectional analysis and prospective observational study with MG patients. The design, conduct, and reporting of this study will follow the rules of The STROBE Statement.

Results: The mean age of the 20 patients (17 females) evaluated was 44 ± 11.6 years and the mean BMI was 28.0 ± 6.0. The average score of MGQOL 15 was 27.8 and the average Epworth Sleepiness Scale was 9.73, and the Berlin questionnaire was positive in only one patient. Regarding polysomnographic variables highlights the average AHI was 19.82 ± 20.16 percentage of REM sleep average was 13.16 ± 4.16.

Discussion: Observing our results we can highlight a significant drop in oxyhemoglobin saturation, reduced REM time, increased NREM stage in two patients, a significant increase in AHI and a high risk for OSA by clinical questionnaire Berlin sleep. Only one patient had abnormal ventilatory pattern by spirometry.

Conclusion: We conclude that patients with clinically stable MG have a high rate of respiratory sleep disorders.

Keywords: Myasthenia Gravis; Sleep; Pulmonary Function; Quality of Life.

P22 Negative Expiratory Pressure technique as screening to obstructive sleep apnoea.

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Background: Negative expiratory pressure (NEP) technique is used to assess upper airway collapsibility in patients with obstructive sleep apnoea, in which expiratory flow limitation has been described as a transient or sustained decrease in expiratory flow during application of NEP. The aim of this study was to describe the negative expiratory pressure NEP, a new method assessing expiratory flow limitation during spontaneous breathing used to identify patients at risk for obstructive sleep apnoea.

Materials and Methods: Upper airway collapsibility is evaluated by measuring decreases in flow and expired volume in the first 0.2 seconds after negative expiratory pressure application at 10 cmH2O.

Results: The NEP is a new method to detect upper airway flow limitation during spontaneous breathing used to identify MG patients at risk for obstructive sleep apnoea, detecting upper airway collapsibility.
Conclusion: Some studies have been conducted under different population and have shown that this new method is reliable to detect upper airway collapsibility and could be used as a screening method for diagnostic obstructive sleep apnea (OSA). Block diagram of the instrument for the analysis of airflow limitation by the negative expiratory pressure technique.

P23 Effect of continuous positive airway pressure (CPAP) on blood pressure and medications in patients with obstructive sleep apnoea (OSA) and resistant hypertension

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Patients from a resistant hypertension clinic were selected to investigate the effect of CPAP on blood pressure (BP) in patients with OSA and resistant hypertension.

22 patients (age 53.3 (SD = 16.7), BMI 37.3 (SD = 5.9)) with OSA (Apnoea-hypopnea Index 31.2 (SD = 15.5), Epworth Score 9.9 (SD = 3.1)) and resistant hypertension were started on CPAP for 6 months. Antihypertensive number and dose were analysed to ensure the results were not attributable to medication titration.

The intervention of CPAP elicited a statistically significant mean reduction across all BP values including systolic -9.7 (95% CI, 4.7 - 14.6), p=0.001; diastolic -7.3 (95% CI, 3.1 - 11.5), p=0.002; day systolic -9.5 (95% CI, 4.1 - 14.9), p=0.002; day diastolic -6.4 (95% CI, 2.2 - 10.7), p=0.005; night systolic -12.8 (95% CI, 7.8 - 17.9), p<0.000; and night diastolic -8.4 (95% CI, 2.9 - 13.8), p=0.004. The reduction in BP was not due to medication titration as the reduction in antihypertensives was not statistically significant (-0.1, p=0.67). and there was a statistically significant mean decrease in medication percentage dose of 11.7% (95% CI, 4.4 - 19.0), p = 0.03. The analysis suggests that CPAP reduces ambulatory blood pressure readings in patients with OSA and resistant hypertension. Randomised control trials are needed to confirm these results.

Ambulatory Blood Pressure Readings pre and post CPAP

P24 Sleep Disordered Breathing in Patients with Heart Failure with Normal Ejection Fraction

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Background: It has been shown that patients with chronic heart failure frequently suffer from sleep disordered breathing (SDB). Obstructive sleep apnea (OSA) as well as Cheyne-Stokes-Respiration (CSR) have been observed, even though often these patients do not show typical symptoms. Most publications were conducted on patients with heart failure with reduced ejection fraction. As there are only few evidence based options for treating patients with heart failure with normal ejection fraction (HFNEF), we want to investigate if therapy of SDB has a benefit regarding HFNEF.

Methods: We screened patients with HFNEF by portable monitoring for SDB (ApneaLink plus, ResMed). Patients with suspicious findings undergo polysomnographic examination. We are aiming at a total of 50 patients. If they show relevant SDB, we initiate positive airway pressure (PAP) therapy or oxygen treatment if PAP-intolerance occurs. Also, we perform physical exercise testing, echocardiographic examination of diastolic parameters (E/A-ratio, E/E’-ratio, left atrial volume), measurement of NT-pro-BNP and use several questionnaires. Patients are followed up after 6 months performing all mentioned examinations again.

Results: So far 31 patients underwent polysomnographic examination, 7 of which did not show relevant SDB, 15 showed OSA and 9 CSR. Of those patients, 14 now receive PAP therapy and 10 oxygen treatment. The first follow-up patient showed promising results (e.g. NT-pro-BNP decreased from 623ng/l to 446ng/l). By the time of the congress in April, more results will be available.

Conclusions: We hope to find that therapy of SDB in patients with HFNEF does not only better sleep apnea, but also objective heart failure parameters.

P25 Impact of obstructive sleep apnea on the right ventricle

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Background: Right ventricular (RV) involvement in obstructive sleep apnea syndrome (OSA) is controversial. The aim of this study was to determine a correlation between echocardiographic parameters of RV function and severity of OSA assessed by the apnea-hypopnea index (AHI).

Methods: Sixty patients with suspected OSA were included. All patients had overnight polygraphy and an echocardiographic assessment of RV structure and function. Patients were divided into three groups: a control group (n=20) with an AHI<5/h, a group of moderate OSA (n=18) with an AHI=5-30/h and a group of severe OSA (n=22) with AHI>30/h.

Results: There were no differences of age, body mass index and sex among the three groups. RV free wall thickness, end-diastolic surface and right atrium surface were statistically higher in OSA patients compared with controls. The peak systolic myocardial velocity at tricuspid lateral annulus S' were significantly lower in patients compared with controls (14.5±3 vs 11.1±2 cm / s, p < 0.001; respectively). This decrease was greater in patients with severe OSA compared with moderate OSA (11.4±3 vs 13.0±1 cm/s, p=0.05, respectively). Right ventricular myocardial performance index (MPI) was significantly higher in OSA compared with controls (0.5 ±0.12 vs 0.46 ± 0.14, p = 0.024, respectively) but it was not correlated with the severity of IAH.

Conclusions: In OSA patients, there was a significant RV dysfunction, although the correlation with the severity of IAH was moderate.

Thematic Poster Session “Obesity and Physiology”

P26 Association between sleep disordered breathing and glaucoma

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Aim of work: to assess the prevalence of glaucoma in patients with obstructive sleep apnea and to assess the prevalence of obstructive sleep apnea in patients with glaucoma.

Subjects & methods: The study included 36 subjects (12 males and 24 females) divided into: Group1 included patients who were referred to the sleep lab at the chest department for assessment of symptomatic sleep disturbance disorders and who had no history suggestive of ophthalmological complaint. This group was subdivided according to results of PSG into:

Group1A Patients with OSA .Group1B Patients without OSA .Group 2 Patients with Primary open angle glaucoma referred from the glaucoma clinic underwent PSG study for assessment of the presence of OSA. This group was further subdivided according to results of PSG into:Group2A: Patients with OSA.Group2B: Patients without OSA. All patients were subjected to:1. Though histoaiging2.
P27 Relation between body mass index and control of bronchial asthma among Egyptian adults with asthma
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Recent literature suggests that Asthma in the obese may represent a unique phenotype of the disease that is often referred to as “obese-asthma” or “obesity-associated asthma”.

Objectives: To evaluate the degree of asthma control among Egyptian asthmatics and to determine whether obesity or increased body mass index (BMI), contributes to worse asthma control.

Methods: Asthma control was determined using the asthma control questionnaire (ACQ) for 300 asthmatics. According to their BMI, patients were categorized into normal weight, overweight, obese and morbidly obese and were compared for demographics, clinical characteristics and ACQ scores. General linear models were used to evaluate the impact of BMI on asthma control (ACQ score).

Results: Asthmatics showed poor asthma control on average (ACQ=1.6). 64% of them were either overweight or obese. Patients with higher BMI scores showed significantly worse asthma control (ACQ scores) (P<0.001). General linear models confirmed that higher BMI is an important predictor of poor asthma control even after adjusting for age, sex, duration of asthma, selected comorbidities and controller medications. Patients with higher BMI reported more hospitalization, use of controller medications and oral steroids (p<0.001 for each).

Conclusions: Patients need not be classified as “obese” for excess weight and body fat to compromise several important asthma variables. Higher BMI, irrespective of BMI “category”, may have important implications for asthma control, medication use, and asthma-specific hospitalization. Hence, suggesting important avenues for asthma management and control.

P28 Evaluation of the Frequency of Overlap Syndrome in Mild Hypoxemic Chronic Obstructive Pulmonary Disease Patients without Obstructive Sleep Apnea Syndrome Symptoms
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Chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea syndrome (OSAS) are both common diseases. The co-existence of both disorders is also common, and is referred to as overlap syndrome (OS). In the present study, we evaluated the prevalence of OS in mild hypoxemic COPD patients without OSAS symptoms. Out of 183 COPD patients screened, 45 with mild hypoxemia (96% men, mean age 67.7±8.5 years) were included in our study and underwent polysomnography. Twenty-six patients with a RDI of ≥15 events/h were defined as OS. When OS (n=26) and COPD (n=19) groups were compared, BMI (29.2±6.8 vs. 25.6±4.9 kg/m²; p=0.03) and TNF-α level (24.77±8.15 vs. 3.59±0.83 ng/ml; p=0.03) were found to be significantly higher in OS group. Sleep time with SpO2<90% was also significantly higher in OS patients (23.9±29.4 vs. 9.7±21.9%; p=0.02). Multiple regression analysis revealed a significant correlation between BMI and RDI (p<0.01). BMI was also correlated to FEV1/FVC ratio (p<0.01), duration of COPD (p=0.031), minimum SpO2 (p=0.007) and sleep time with SpO2<90% (p=0.001). BMI as a predictor of OS was examined with ROC curve analysis, the area under the curve was found to be 0.691 (p=0.03). For identifying OS patients, BMI>27.2 kg/m² had a sensitivity of 73% and specificity of 68%. The present findings support that high prevalence of OS in mild hypoxemic COPD patients is related to BMI, and a sleep study should be considered in obese COPD patients, even in those with no sleep apnea symptoms.

P30 Sleep disorders and the TNF-α /G-308A polymorphism in program WHO MONICA MOPSY
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Purpose: To examine the association of the TNF-α /G-308A polymorphism genes with sleep disorders (SD) in the population of menin Russia

Material and methods. Under the third screening of the WH0 program “MONICA-psychosocial” random representative sample of men aged 25-64 years (n=657) were surveyed in Novosibirsk. Estimation of sleep was assessed by the Jenkin’s test.

Results: SD in man’s population of 25-64 years made: 48.3%. The genotype of G/G of a gene of TNF-α met at 79.1% of persons, A/G genotype - in 19% of cases and A/A genotype at - 1.9% of men. Among COPD, asthmatics of G/G of a gene of TNF-α, in comparison with carriers of all other genotypes, the sleep assessment “well” meets much more often (98.3%). On the contrary, among carriers of genotype of A/G of a gene of TNF-α, in comparison with carriers of all other genotypes, the sleep assessment “good” (30%), than “good” (15.2%) was more often.

Conclusion: Determined that the genotype A / G of a gene of TNF-α is associated with sleep disorders.

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P31 Is there any association between the severity of SAOS and glycated hemoglobin?
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Introduction: The OSA cause hypoxia and are associated with glicolipids changes, formation of free radicals and oxidative stress, being a risk factor for development of insulin resistance, glucose intolerance, type 2 diabetes mellitus and metabolic syndrome.

Objectives: Evaluate whether exists an association between the severity of apnea and hypopnea index and serum levels of glycated hemoglobin - HbA1c in subjects with suspected OSAS without self-referred diabetes diagnosis.

Methods: Cross-sectional study of consecutive cases of a university hospital in Brazil. Twenty-two men with suspected OSA have taken part in this study, within one year. All of them had no self-reported prior diagnosis of diabetes mellitus and they have undergone a full-night in-lab polysomnography so as it was possible to calculate the AHI. Blood sampling was performed for analysis of HbA1c levels. Summary statistics were calculated and statistical tests used were Spearman’s correlation test and odds ratio. The level of significance was 5%.

Results: The results of the study showed a strong positive correlation between the variables AHI and HbA1c and it was demonstrated by Spearman’s correlation coefficient=0.683, p<0.001) and odds ratio: OR=21.00 (CI 95%=1.00 to 438.25; p=0.0495).

Comments: These data suggest that the severity of OSAS may be associated with abnormal A1c levels in non-diabetics. There is an association between the severity of OSAS, measured by AHI/h, and serum levels of HbA1c in middle-aged men. Additional studies with larger samples are needed to obtain a better understanding of the association between OSAS severity and HbA1c levels.
**INTRODUCTION:** Obstructive sleep apnoea syndrome (OSAS) is a multisystemic disease characterised by chronic inflammation. Though mechanisms taking role on inflammatory process of OSAS is not certainly clear, hypoxia periods repeating with short periods during night causes the activation of various inflammatory particles. The neutrophil-to-lymphocyte ratio (NLR) is a simple, rapid parameter that indicates the presence of systemic inflammation. Aims and adjectives: In this study, we aimed to evaluate the relationship between OSAS and the NLR.

**METHODS:** We retrospectively examined the laboratory results of 209 patients with suspected OSAS, evaluated by polysomnography. The patients were classified into either the control group (n = 91) or the OSAS group (n = 118) according to their apnoe–hypopnoea index. WBC, hemoglobin, MPV, PDW, RDW and other haematological parameters were measured using an automated blood cell counter. The NLR was calculated as the absolute neutrophil count divided by the absolute lymphocyte count.

**RESULTS:** There were no differences in age, sex, body mass index and smoking habit between patients with OSAS and controls. The NLR was higher in the OSAS group than in the controls (p = 0.007). As the NLR increased according to the severity of OSAS, no statistically significant difference was detected between the groups (p = 0.539). The NLR was also negatively correlated with the average oxygen saturation levels in the OSAS group.

**CONCLUSION:** The NLR is reportedly associated with many chronic diseases such as chronic obstructive lung disease, cardiovascular disease. These findings suggest that the NLR may be used as a marker of inflammation in patients with OSAS.

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recording, improve cardiopulmonary parameters were observed: an apnea hypopnea index of 38/hour, desaturation index of 19/hour, minimal O2 saturation of 70%(average of 87 %). The baseline heart rate was now 68 bpm, daily or nighttime pauses were not observed.

The interest of our case lies in the complete disappearance of SNP on Holter monitoring with CPAP treatment.

**P36 An Observational Study of Obstructive Sleep Apnoea in Malta**
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1- Department of Medicine, Mater Dei Hospital, Malta
Background: The Maltese population has one of the highest BMIs in the EU. Up to 10% of the population suffers from diabetes, with CAD being the top cause of death. No data exists about OSA and associated comorbidities in Maltese patients.

Aims: Assess the appropriateness of referrals to the local sleep lab
Describe the local OSA population for the first time
Assess the coexistence of OSA and CAD in the local sleep clinic population

Results:
377 patients aged 16 and over included, referred to the local sleep lab between August 2010 and December 2011.
Mean BMI 37.31kg/m2
Mean AHI 31.81
86.21% had a diagnosis of OSA; 50.77% had severe OSA
Average HbA1c 7.3%
78(20.69%) of 377 patients included in the study underwent a coronary angiogram; 46(58.95%) being diagnosed with CAD, 43(93.48%) of those having documented CAD also had OSA. A positive correlation was found between AHI and BMI(r=0.35, p=0.001).

Conclusion: The local OSA population was severely obese with a mean AHI of 31.81. Referrals for investigation were appropriate in the majority of cases (86.21%). More than half of these patients (50.77%) had severe OSA. 12% of patients referred for sleep study had documented CAD with the majority being diagnosed with OSA (93.48%). The high mean AHI suggests that these patients are being identified at a later stage of their disease. OSA is an independent risk factor for CAD and the two often co-exist. This is especially relevant in our local OSA population due to the high prevalence of diabetes and CAD. This study confirms that OSA within the local population is a potential major health problem that needs more research to describe the prevalence of the condition and associated comorbidities.

**P37 Studying the central respiratory chemoreception using a mathematical model of phrenic nerve discharges.**
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Central CO2 chemoreceptors react primary on the intracellular pH decrease. Increase in CO2 during hypercapnic acidosis, however, does not lead to intracellular pH recovery in chemosens. neurons, compared with non - chemosens. neurons under the same conditions. The regulatory mechanisms remains not explained, although a maintenance of different ion exchangers has been proposed to play a crucial role also in central chemorec.(1). Disregulations in the central chemosens. neurons are often associated with pathophysiol. mechanisms of SIDS or other serious ventilatory disorders. We study possible cellular mechanisms responsible for pH recovery by means of mathematical modeling using the ubiquitous Na÷/H+ and HCO3÷-Cl exchangers as the main transmembrane acid-base transporters. Different modeling approaches in eukaryotic cell and their adequacy for proposed task are evaluated. The simulations of phrenic nerve responses to central chemoreception have also been performed by means of modern mathematical approaches, such as wavelets or approximations entropy(2). Decreased frequency ranges and complexity values were observed as a typical sign for hypoxic stages, suggesting the basic respiratory rhythm generator to become dominant for hypoxic and hypercapnic conditions. Future model implications are also suggested to evaluate prediction of (patho)physiological processes. 1.V.A. Ruffin ae al. Intracellular pH regulation by acid-base transp. in mammalian neurons, in Frontiers in Physiology, vol.5, 2014. 2. J.A. Knocikova:Time-frequency energy distrub of phrenic nerve discharges during aspiration reflex, cough and quiet inspiration, in CMPB, vol.102, pp. 81-90, 2011.

**P39 The effect of sleep on exhaled volatile compound pattern in obstructive sleep apnoea**
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Introduction: Previous studies reported that electronic nose could discriminate patients with obstructive sleep apnoea (OSA) from control subjects based on the analysis of exhaled breath volatile compound pattern. However, the effect of sleep on exhaled volatile compound pattern has not been studied before. We aimed to compare breath patterns in the evening and in the morning in patients with OSA, and to study the ability of the electronic nose to distinguish patients from controls based on these exhaled volatile patterns.

Methods: Exhaled breath volatile compound pattern was measured before and after night in 26 patients with suspected sleep-disordered breathing (53±15 years) who underwent polysomnography and in 10 control subjects (37±15 years), by whom sleep disordered breathing was excluded with a home apnoea screening device (ApneaLink, ResMed). Exhaled volatile compound pattern was processed with Cyranose 320 electronic nose, and principal component analysis was used for statistical analysis.

Results: Exhaled volatile compound patterns recorded in the evening and in the morning were different in patients with OSA (p=0.01) but not in non-OSA habitual snorers (p=0.49) or in control subjects (p=0.23). The electronic nose distinguished patients with OSA from control subjects based on the breath samples collected in the morning (p<0.001, classification accuracy 77%), but not in the evening (p=0.05).

Conclusions: Evening and morning exhaled volatile compound patterns are different in OSA. This might affect the ability of electronic noses to identify this disorder. Overnight alterations in volatile substances need to be taken into account during exhaled breath measurements in OSA.

**P40 Healthy-Lifestyle Interventions for Obstructive Sleep Apnea (OSA): Current UK practice.**
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Introduction: Obesity and a sedentary lifestyle are common in OSA and are associated with comorbidities. British Thoracic Society guidelines suggest Healthy-Lifestyle Interventions (HLI) for obesity-related OSA.

Aims: To assess the current practice regarding HLI for obese individuals with treated OSA in 1) a local tertiary care hospital and 2) across UK sleep services.

Methods: 1) Clinical records of individuals with obesity-related OSA attending a sleep clinic were reviewed. Lifestyle advice, HLI, and serial weights were assessed. 2) An on-line survey using five multiple-choice questions was sent to the leaders of UK sleep services about their practice and views on the provision of healthy lifestyle advice and interventions.

Results: 50 patient records were reviewed: 66% male, mean age 58yrs. 82% of the patients had received healthy lifestyle advice: this was weight loss in 88% and increasing physical activity in only 20%. There was no change in serial weights (ANNOVA p=0.99). Figure 1 shows the results of the 35/126 responses to the survey sent to UK sleep services.

Conclusions: Weight loss is not currently achieved in obese individuals with OSA and written advice or support for increasing physical activity is rarely provided. Over a third of UK sleep services have no HLI available for obesity-related OSA. Further investigation of HLI is needed for this population.
This report shows a potential worsening of SDB in patients undergoing a standard procedure for surgical facial nerve reconstruction. We hypothesize significant role of a partial hypoglossal nerve sectioning including nerve fibers of genioglossus muscle which prevents the posterior displacement of the tongue. As the nerve stimulator is used to find medial fibres innervating the genioglossus muscle during implantation of hypoglossal nerve stimulation (HGNs), a similar method may be implemented as a part of a hemihypoglossal–facial nerve anastomosis procedure. This would allow this portion of the nerve to stay intact, and the lateral portion would be transected and attached to the facial nerve distal stump. It should be also considered whether prior to every hemihypoglossal–facial nerve anastomosis, the sleep study, as the part of preoperative tests, should be done to evaluate the patients’ SDB status.

P44 Study of the possible relationship between the tissue intermittent hypoxia in sleep apnea and the serum uric acid/creatinine ratio
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Objectives: Determine if there are potential correlations between serum uric acid/creatinine ratio (UA/Cr) and sleep parameters and to determine whether the severity of sleep apnea syndrome (SAS) was associated with increased levels of UA/Cr ratio.

Material and methods: A sleep study was conducted on 106 patients and serum uric acid and creatinine was measured. The ratio UA/Cr was calculated. Anthropometric parameters and Epworth scale were recorded.

Results: 106 patients (77 men, 29 women), 54±13 years, BMI 30.1±5.8 Kg/m2, neck circumference 42±5 cm, apnoea/hypopnoea index (AHI) 33.7±27.3 h⁻¹ and Epworth scale 10±6. Using a Pearson correlation analysis, significant correlations were found between UA/Cr ratio and AHI (r=0.242), minimum SpO2 (r=-0.251), desaturation index (DI) (r=0.253), BMI (r=0.345) and neck circumference (r=0.303). No correlations with age and Epworth scale.

To evaluate whether UA/Cr ratio varies according to the degree of severity, we differentiated 3 groups: 1 (AHI ≤5), 2 (AHI 5–30), and 3 (AHI >30). The mean UA/Cr ratio from the groups were: 1) 4.9±1.1, 2) 5.4±1.3 and 3) 5.9±1.2. Using an analysis of variance and a Bonferroni test, significant differences were found between groups 1 and 3 (p<0.015).

Conclusions: Significant positive correlations were found between serum uric acid/creatinine ratio and AHI, DI, BMI and neck circumference and negative correlations with minimum SpO2. Values of UA/Cr ratio increased as the severity of SAS increased. Then UA/Cr ratio could be considered a marker for intermittent hypoxia.

P45 Why exhaled nitric oxide is elevated in patients with obstructive sleep apnea syndrome
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Background: Airway inflammation in obstructive sleep apnea (OSA) has been reported. Snoring, hypoxia and obesity contribute to this inflammation. Measurement of exhaled nitric oxide (ENO) is a non-invasive method for evaluation of airway diseases.

Objectives: We aimed to evaluate the relation between level of ENO and severity of OSA.

Patients and Methods: An exhaled nitric oxide measurement was performed in 52 consecutive patients referred for polysomnography or polygraphs. Patients with any respiratory diseases and active smoker were excluded. Subjects were divided into three groups according to the apnea-hypopnea index (AHI); group 1 subjects without or with mild OSA (AHI≤15), group 2: patients with moderate OSA (AHI: 15–30), and group 3: severe OSA (AHI > 30).

Results: 38 patients with mean age of 42.6±11 years were included. Patients were allocated to the three groups in the following way: G1: 12 patients, G2: 11 patients and G3: 15 patients. The EPWORTH sleepiness scale was higher in the Group 3 (14.2) than the Group 2 (12.1) and the group 1 (10.6; p<0.05). The BMI in Group 1 (27.4)
was lower than Group 2 (30.2) and Group 3 (31.3; p<0.05). The ENO in Group 1 (18.2 ppb) was lower than Group 2 (20.4 ppb) and Group 3 (24.3 ppb). The ENO was more correlated to the obesity and the EFWORTH sleepiness scale than the IAH.

Conclusions: Obesity and sleepiness are promoting factor in the inflammation of airways in patients with obstructive sleep apnea.

**Thematic Poster Session “OSA and Central Sleep Apnoea I”**

**P46 Obstructive sleep apnea in women and risk factors - retrospective analysis**

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**Introduction:** Obstructive sleep apnea (OSA) affects mostly men but the prevalence of OSA in women may be higher than previously recognized which could be associated with its unique clinical expression and association to specific comorbidities. Regarding OSA risk factors, their prevalence in women are still unclear. OSA has a strong relation with cardiovascular diseases but when with psychiatric diseases the relationship has been inconsistent.

**Aim:** Investigate the relation between OSA and the prevalence of risk factors and comorbidities in women.

**Material and Methods**
Retrospective analysis of women submitted to overnight polysomnography (PSG) at a Sleep Laboratory in a University Hospital between 2004 and 2013. Clinical reports were reviewed and pertinent clinical data retrieved, including Body Mass Index (BMI) and comorbidities. PSG allowed to divide in two groups, with or without OSA. Data analysis was executed by SPSS.

**Results:** A total of 403 women were enrolled in this study, 55.3% of which were diagnosed with OSA. OSA women were older, had higher BMI, more cardiovascular risk factors (p<0.000) and a higher risk for overweight/obesity, diabetes, arterial hypertension and dyslipidemia (p<0.032). Women without OSA had a higher risk for depression and/or anxiety. Stepwise multiple regression showed that age and BMI independently predicted OSA while depression and/or anxiety were negatively correlated with the risk of OSA.

**Conclusions:** Age and BMI were the two main independent risk factors for OSA and cardiovascular comorbidities as a whole were meaningfully associated with OSA in women. Psychiatric comorbidities such as depression and/or anxiety were relevant in women without OSA.

**P47 Adaptive Servo-Ventilation in Patients with Heart Failure and Cheyne - Stokes Respiration**

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**Introduction:** The presence of obstructive sleep apnea and central sleep apnea with Cheyne-Stokes Respiration (CSR) was found to have great impact on the prognosis of patients with Heart Failure (HF).

**Objective:** To study the effectiveness of ASV in cardiac function and sleep-disordered breathing in patients with HF and CSR.

**Methods:** The sample consisted of 22 patients with HF evaluated with Polysomnography, diagnosed with CSR and compliant with ASV and optimal medical therapy for HF. As this is a retrospective study we used the clinical diaries to obtain parameters related to cardiac function and SDB. Analysis of parameters before and after ASV was performed.

**Results:** The sample had the following baseline characteristics: 74 ± 8 years, class of the New York Heart Association of II and average left ventricular ejection fraction (LVEF) of 51.9 ± 10.1%. After ASV treatment, the respiratory disordered index suffered a significant decrease of 36.7 ± 20.1 to 11.8 ± 8.9 (p <0.001) and the %CSR of 32.4 ± 26.3% to 3.3 ± 9.8% (p = 0.001). The NYHA class was significantly decreased in 50% of patients (p = 0.008), LVEF increased from 54.9 ± 10.1% to 56.1 ± 10.6% (p = 0.032), and NT-proBNP values decreased from 4223.54 ± 6979.8 pg / ml to 1311.6 ± 1660.9 pg / ml (p = 0.001).

**Conclusions:** In our sample of patients, with HF and CSR, treatment with ASV therapy improved symptoms of HF and parameters related to cardiac function and SDB. These results demonstrate the need to consider the presence of obstructive and central events of the CSR type in order to initiate adequate treatment and improve cardiac function.

**P48 Clinical-functional effectiveness of auto-CPAP therapy in patients with combined pathology – BA+OSAHS**

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**Aim of study:** to study the influence of auto-CPAP therapy on clinical symptoms and functional indices in BA patients with OSAHS.

**Materials and methods:** 20 BA patients (FEV1(68,0 ± 3,3)% with OSAHS (AHI – (33.6 ± 5.6) diagnosed by PSG, 7 female and 13 male, mean age (56.7 ± 2.2) years with BMI (35.4 ± 2.2) kg/m2 were treated auto-CPAP therapy during 10 nights on the background of standard BA therapy. Patients were assessed with ACQ, Epworth Sleepiness Scale, bodyplethysmography (“Cardinal Health” (Germany)), 6-min walk test with BORG scale at baseline and after studied course of treatment.

**Results:** Addition of auto-CPAP therapy to the basic treatment in patients with BA+OSAHS led to early significant (p <0.05) and clinically meaning (>0.5 points) decrease of clinical symptoms - ACQ changed from (1.7 ± 0.1) till (0.9 ± 0.1), daytime sleepiness – fell 2 times - from (15.2 ± 0.8) till (8.1 ± 0.8) points, <p <0.05), increased morning PEF from (347 ± 14) l/min till (354 ± 15) l/min (<p <0.05) according diary, FEV1improved from (71.1 ± 3.2) till (81.8 ± 4.0) % pred. (<p <0.05), increased walking distance from (333.0 ± 14.0) m till (349.7 ± 13.3) m and decreased dyspnea from (2.2 ± 0.2) till (1.5 ± 0.2) points after end of treatment (<p <0.05).

**Conclusion:** addition of auto-CPAP therapy to the basic treatment in patients with BA+OSAHS improved clinical-functional indices: significant decreased of clinical symptoms, daytime sleepiness, improvement of morning PEF and bronchial airflow after course of studied therapy.

**P49 The Effect Of Continuous Positive Airway Pressure On Respiratory Infections In Patients Suffering From Obstructive Sleep Apnoea**

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**Introduction:** Continuous positive airway pressure (CPAP) is the standard treatment for obstructive sleep apnoea (OSA), with limited data about the prevalence of respiratory infections and microbial colonization in these patients.

**Aims and objectives.** The aim of this study is to determine if CPAP use is associated with respiratory infections and to identify the organisms that colonize or infect these patients.

**Method.** A prospective, case-controlled study in patients diagnosed with OSA was carried out. 137 patients were recruited, interviewed using a questionnaire and a nasal swab was taken from each patient. Patients using CPAP machines had swabs taken from masks and humidifiers.

**Results.** 66 (48.2%) patients received CPAP treatment with 60.6% of them having a heated humidifier. 78.8% were male, with the majority using a full face mask (63.6%). No significant difference was seen in the prevalence of rhinovirus, lower respiratory tract infections and...
hospital admissions between CPAP and non-CPAP treated patients. The presence of a humidifier did not influence the prevalence of infections. Commensal flora was predominantly cultured from nasal swabs from both patient groups. Coagulase Negative Staphylococci and Diphtheroids were the main organisms cultured from masks (23.4%) and humidifiers respectively. 

**Conclusion.** This study shows that the use of CPAP, choice of mask and humidifier had no significant impact on the prevalence of infections and micro-organisms isolated. These results contrast with previous data suggesting that more research is needed to identify potential associations between respiratory infections, microbial colonization and CPAP use.

**P50 Are there differences between patients with severe obstructive sleep apnea syndrome regarding sleepiness? Retrospective study.** Oana Claudia Deleanu 1,2, Anda Elena Malaut 3, Florin Dumitru Mihaltan 1,2

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**Introduction:** Epworth Sleepiness Scale (ESS) is evaluating excessive daytime sleepiness. Studies shown that ESS is associated with increased morbidity and mortality in obstructive sleep apnea (OSA).

**Aims:** To study the difference between patients with ESS≥10 vs ESS<10 in a population with severe OSA (apnea-hypopnea index >AHI>30/h).

**Methods:** We studied 311 patients with severe OSA. After exclusion of other causes of somnolence (insomnia, COPD, asthma, GERD, restless leg, joint pain) we compared groups ESS≥10 vs ESS<10

**Results:** ESS≥10 vs ESS<10 patients(55.9%), ESS<10<137(44.1%). Patients with ESS≥10 are active smokers in a higher percent(36.9% vs 13.6%, p=0.041), have higher Fagerstrom score of nicotine dependence(5.2±3.1 vs 2.7±1.9,p=0.001), higher body mass index(33.7±5.9 vs 37.3±6.5, p=0.013), OSA symptoms non-related to somnolence in a higher percent - nightmares(37.4% vs 7.1%, p=0.004), nocturia(70.6% vs 25.6%, p=0.004), impotence(38.5% vs 9.3%, p=0.001) and more comorbidities (coronary heart disease, arterial hypertension, dyslipidemia,p<0.05)

Although all patients had severe OSA, patients with ESS≥10 had a higher AHI(63.9/h vs 54.7/h,p=0.001), higher desaturation index(66.4/h vs 56.5/h,p=0.001) and needed higher CPAP pressure to correct respiratory events (10.5 vs 9.7 cmH2O,p=0.002). ESS poorly correlated with Fagerstrom score(p=0.013, r=0.27) and CPAP value (p=0.001, r=0.27).

**Conclusions:** Severe OSA patients with ESS≥10 appear to be a different phenotype, having more symptoms, more comorbidities, higher nicotine dependence and a more severe OSA syndrome.

**P51 Improving the identification of patients with obstructive sleep apnea: a new screening tool for high risk populations.** Mohammed Ahmed 1, Akke Vellinga 2, Connor Judge 1, Imran Sulaiman 1, Keshav Sharma 3, John Garvey 1, JJ Gilmarten 1

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A number of validated questionnaires are routinely used to screen specific populations for obstructive sleep apnoea (OSA). These questionnaires depend on subjective questions which cannot be independently confirmed and result in high sensitivity and low specificity. The aim of the study was to identify independently verifiable and measurable risk factors and increase specificity to reduce healthcare cost.

A retrospective data collection of patients (N=164) attending for overnight sleep study SS was performed with results of STOP STOPBang. Berlin and Epworth questionnaires as well as demographic and health related variables. Significant OSA was defined as an AHI=15. A new questionnaire was devised including the independently verifiable factors IVFs and data was prospectively collected from patients undergoing SS (N=147).

The retrospective analysis identified 8 IVFs as the most influential. Analysis of the prospective data resulted in a new scale (MERLIN) with a cut off of 3 based on the equation: OSA=(BMI-30*2)+(Age-50)+(Male)-(neck-16)+(diabetes)+(alcohol-2) with results of STOP 93% with 3% missed, STOP-Bang 95%; 1% missed, Berlin 88%; 4% missed, Epworth 56%; 15% missed, MERLIN 73%; 5% missed.

In a high risk patients referred for SS we IVFs associated with OSA. A new tool is described with the aim to maximise OSA identification while keeping costs down.

Comparison of different scores in the prospective study

**P53 A survey of the perception of obstructive sleep apnea by primary care physicians in Republic of Moldova**

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**Background:** In clinical practice in Republic of Moldova, sleep disorders are often only rarely addressed or treated. Despite the high prevalence of sleep disorders in the general population and primary care setting, sleep complaints are under addressed by physicians. The aim of this study was to explore knowledge related to obstructive sleep apnea diagnosis and management from family physicians.

**Methods:** The survey was taken by 97 primary care physicians. The questions on local epidemiology, management and treatment of obstructive sleep apnea were included in the study.

**Results:** One-half of patients mention symptoms of obstructive sleep apnea: snoring and daytime sleepiness to their primary care physicians. Our study shows that in the mean 96.3±56.7 patients with systemic hypertension and body mass index (BMI) >30 kg/m2 are registered in each distinct of primary care physician (average number of general population for each distinct is 1500). There have been shown a limited level of knowledge of obstructive sleep apnea major risk factors (53%), complications (33%), diagnostic (26%) and treatment options (47%).

**Conclusion:** The primary care physicians from Republic of Moldova continue to report lack of awareness to obstructive sleep apnea. There is a strong need for adequate and efficient use of knowledge.

**P54 Positive airway pressure (PAP) and adherence – a long-term follow-up study: The Icelandic Sleep Apnea Cohort (ISAC)**

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**Introduction:** Most studies on PAP usage are short term and do not consider different characteristics of users and non-users in neither relation to early quitting or long-term use.

**Aims and objectives:** To follow well defined cohort for 5–9 years.

**Material and methods:** Included were 822 patients (665 males, 157 females) with moderate to severe OSA starting PAP at Landspitali
University Hospital (LUH) from 2005 – 2010. Two years later 741 patients came for a follow-up and in October 2014 PAP usage status of all 822 patients was determined.

**Results:** 805 (97.9%) of the OSA patients were identified in LUH files. Mean follow-up time: 6.7±1.2 years. Of those, n=521 (65%) were using PAP. Long-term users had at baseline significantly higher BMI (34.1±5.6 vs. 32.4±5.6 kg/m2, p<0.0001), a higher apnea hypopnea index (AHI) (48.5±21.0 vs. 38.6±17.9 events/h, p<0.0001) and more sleepiness by the Epworth Sleepiness Scale (ESS, 12.3±5.0 vs. 11.3±5.0, p=0.03) than nonusers. Long-term PAP adherence was not related to smoking, gender, age, diabetes or cardiovascular diseases. Of the nonusers, 66 (23.5%) had returned the device within 3 months. Early quitters were less obese, had less severe OSA, reported less often symptoms of sleepiness and nocturnal sweetening and had fewer concomitant obstructive lung disease than those using PAP longer.

**Conclusion:** Two-thirds of moderate to severe OSA patients are regular PAP users after 7 years. Obesity, OSA severity, sleepiness and obstructive lung disease are all important determinant of long-term compliance but their significance varies depending on when the OSA patientsquit using PAP.

**P55 Effect of mandibular advancement device therapy on cognitive and psychomotor performance in obstructive sleep apnea**
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**Background/Introduction:** Obstructive sleep apnea (OSA) is common sleep-disordered breathing characterized by recurrent episodes of upper airway collapse during sleep with associated airflow obstruction, intermittent hypoxemia, sympathetic excitation and sleep fragmentation. Intermittent hypoxemia and sleep fragmentation may contribute to impaired cognitive and psychomotor performance.

**Aims:** The aim of this study was to determine the effect of the custom-made adjustable mandibular advancement device (MAD) on cognitive and psychomotor performance in patients with mild to moderate OSA.

**Methods:** A total of 15 patients with mild to moderate OSA were treated with custom-made adjustable MAD and they were followed-up after 1 year of therapy. Sleep studies were performed with and without the MAD. The patients were tested on three different tests of cognitive and psychomotor performance using computer-based system Complex Reaction-meter Drenovac (CRD series) at baseline and at the time of follow-up.

**Results:** The mean apnea-hypopnea index (AHI) decreased significantly from 22.9±5.9 at baseline, to 9.7±4.5 after 1 year of therapy (P<0.001). Total sleep time was measured on simple arithmetic operation test was significantly shorter following MAD therapy (155.36±60.82 to 137.09±4.8; P=0.026) and reaction time to light signal position test (36.72±5.34 to 33.89±4.55; P=0.011). There was no significant change in TTST on arms/legs motor coordination test.

**Conclusions:** This study demonstrates significant improvements in some aspects of cognitive and psychomotor performance in mild to moderate OSA patients following MAD therapy.

**P57 Predicting the apnea by non-linear analysis of EEG signal in patients with sleep apnea**
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The aim of this study is predicting the apnea by non-linear analysis of EEG signal in patients with obstructive and central sleep apnea. The EEG signals were 8-h baseline recordings from the C4-A1 derivation with a resolution of 250 Hz. Non-linear analysis including detrended fluctuation analysis (DFA) and Sample Entropy were done for each 3s after filtering the EOG and EEG noise by adaptive filters. The results show that the irregularity and fractal correlation parameters are starting to decrease before apnea. Compared with normal sleep, the fractal correlation and irregularity were significantly lower (p<0.05) during apnea especially for the stage I and II. Our results indicates that the complexity of EEG signals starts to decrease before apnea. It seems that there are special processes in brain causing apnea and we can use this analysis to predict the apnea before occurring.

**P58 Non alcoholic fatty liver disease is an independent risk factor for inflammation in obstructive sleep apnea syndrome in obese Asian Indians**
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**Introduction:** OSA has been estimated to affect 4-11% of the population. OSA and NAFLD are both strongly associated with obesity. We looked association between OSA and the NAFLD in obese Asian Indians.

**Material and Methods:** 180 subjects 74 OSA with NAFLD (group 1), 35 OSA without NAFLD (group 2), 42 without OSA and with NAFLD (group 3) and 29 without OSA and without NAFLD (group 4) were evaluated. Degree of NAFLD was based on abdomen liver ultrasound and of OSA on overnight polysomnography. Clinical, anthropometric, body Fat (BF), %BF, biochemical and cytokines levels was measured in all subjects.

**Results:** Blood pressure, %BF, BF, serum triglyceride, cholesterol, alanine aminotransferase, IL-6, Hs-CRP and TNF-α was significantly higher in OSA and NAFLD group (p<0.05). Multi variable comparison showed that IL-6 (p=0.003) and TNF-α (p=0.005) was significantly higher in group1 as compared group 2. IL-6 (p=0.005) and Hs-CRP (p=0.04) was significantly higher in group 2 as compared to group 3. IL-6 (p=0.001), Hs-CRP (p=0.002) and TNF-α (p=0.001) was significantly higher in group1 as compared to group 4. Hs-CRP levels (p=0.006) was significant in group 2 as compared to group 4. Multivariable logistic regression showed that OSA was positively associated with the NAFLD (Odds ratio (OR), 95% confidence interval (CI): 3.12 (2.58-7.72), (P=0.002)).

**Conclusion:** NAFLD is an independent risk factor for OSA. NAFLD in patients with OSA is associated with significant increase in inflammation as assessed by levels of IL-6, TNF-α and Hs-CRP in Asian Indians in North India.

**P59 Effect of Nasal Continuous Positive Airway Pressure (CPAP) Therapy on Sleep Architecture in Patients with Sleep Apnea**
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**Introduction:** The goal of the research was to study the peculiarities of sleep architecture in patients with the SAS before CPAP therapy and at the background of CPAP.

**Materials and methods:** 25 patients with SAS were examined. In all patients was determined BMI and EDS by Epworth Sleepiness Scale scores (ESS). For diagnostics of SAS a PSG was done. Nasal CPAP was applied by using Auto Adjust CPAP Machine.

**Results:** The patients have a high rate of sleep disorders. ESS(20–22) and BMI 30-45. PSG has shown that the patients with OSA (22) and CSA (3) are characterized by significant decrease in sleep architecture, which results in full absence of the II stage of sleep, the increase of REM, frequent EEG and EMG awakenings, and by the fragmentation of sleep as a whole. Central sleep apnea was characterized by relatively low index of snoring (SI: 80–120) and relatively high indices of the saturation (SpO2) (87–93) in cases of OSA(SI:200), SpO2(36–91). At the background of CPAP therapy the first significant effect was received after 2 h resulting in the regulation of respiration and snore index. The progressive increase of SpO2 was within the limits of 92–95%. Sleep architecture considerably changed, EEG and EMG awakenings sharply decreased, NREM stages increased, in rare cases when NREM3 stage was noted, sleep fragmentation significantly decreased.

**Conclusion:** Thus, SAS is characterized by significant disorder of sleep architecture. At the background of CPAP therapy a significant improvement of sleep architecture and the regulation of symptomcomplex characteristics of sleep apnea take place.
P60 The effects of chronic morphine and subsequence GAL-160 administration on sleep architecture and EEG power density in rats
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GAL-160 reverses the morphine-induced increase in CSA frequency during NREM sleep in rats (Gruber et al., 2014). Here, we measured the effects of morphine alone (G1, n=5) and morphine with GAL-160 (G2, n=6) on sleep architecture and EEG power density (PD) to determine if drug-induced sleep disturbances contributed to the effects of morphine and GAL-160 on CSA frequency. G1 rats received only morphine (0.6 mg/ml in their drinking water) for 14-21 days. G2 rats received morphine as per G1 and a single dose of GAL-160 (7 mg/kg, PD) and vehicle after 14 days on morphine. EEGs and EMGs were recorded (1K/s, 0.5-30 Hz) between 9:30 am to 4:30 pm on two study days for both G1 (before morphine and at 14-21 days on morphine) and G2 rats (GAL-160 and vehicle dosing). Each 4-s epoch of EEG/EMG data were scored as wakefulness, NREM or REM using standard rodent scoring techniques. Sleep architecture was quantified as percent time in each sleep state, the number of bouts and epochs/hr, the mean bout and epoch length, and the arousal index. EEG PDs were measured using a 4-s window FFT. Compared to the drug-naive state, morphine did not alter the quantity and architecture of NREM sleep but increased the PD of NREM sleep slow waves. Morphine increased the percent time awake, and decreased the percent time spent in REM, the number of REM bouts and epochs per hour, and the PD of the REM sleep theta band. Compared to the morphine-only state, GAL-160 caused no additional effects on sleep architecture and PD. Thus, the ability of GAL-160 to reverse morphine-induced sleep disturbances.

Thematic Poster Session “Paediatrics”

P61 Excess cases of narcolepsy in children and adolescents vaccinated with an AS03 adjuvanted pandemic influenza vaccine in Germany
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Introduction: Recently published epidemiological studies associate an AS03 adjuvanted pandemic influenza vaccine (Pandemrix, GSK) with narcolepsy. The aim of this study was to investigate whether, in Germany, the number of narcolepsy cases following Pandemrix vaccination reported to the Paul-Ehrlich-Institut (PEI) under the age of 18 with symptoms onset within a time window of 16 weeks following immunization is higher than expected.

Methods: Individual case safety reports (ICSR) of narcolepsy following receipt of Pandemrix submitted to the Paul-Ehrlich-Institut (PEI) until July 2014 were reviewed and validated according to the criteria of the Brighton Collaboration’s (BC) definition for narcolepsy. An observed versus expected (OvE) analysis was conducted based on confirmed narcolepsy cases and an age-specific background incidence rate using standardized morbidity ratio (SMR) methods.

Results: A total of 26 ICSR of suspected narcolepsy in AS03 adjuvanted pandemic influenza vaccines were reported to the PEI. Sixteen children and adolescents (9 females, 7 males) met the BC criteria for narcolepsy (level 1: n=7, level 2: n=8, level 3: n=1). Two confirmed cases were excluded from further analysis because first symptoms had occurred prior to vaccination. Nine children and adolescents presented with symptoms of narcolepsy within 16 weeks after immunization. A significantly increased SMR for narcolepsy was found following administration of Pandemrix [SMR: 6.4 (95% CI 2.9-12.2)].

Conclusions: The OvE analysis revealed that German children and adolescents vaccinated with Pandemrix were at an increased risk to develop narcolepsy within 16 weeks after immunization.

P62 SLEEP BREATHING DISORDERS IN CHILDREN WITH DRUG-RESISTANT CATASTROPHIC EPILEPTIC ENCEPHALOPATHY
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Sleep breathing disorders (SBD) induce a chronic modification of sleep architecture and a state of intermittent oxygen desaturation, resulting in poor control of seizures and excessive daytime sleepiness. This study is aimed to assess the presence of SBD in a cohort of children with medically refractory catastrophic epileptic encephalopathy.

The study group is composed 11 patients (9 males, 2 females), aged between 3 and 11 years. Patients with secondary seizure were excluded from the study. The 11 patients had Obstructive Sleep Apnoea Syndrome (OSAS). In particular, seven patients presented severe OSAS, two presented moderate OSAS and 2 patients were found to have mild OSAS. Nine subjects were referred for snoring or sleep-related breathing problems. The patients also presented alterations of the total time of sleep and of the sleep latency. Apnoea Hypopnea index and average oxygen saturation are negatively correlated with REM sleep percentage (p<0.05). Nadir oxygen saturation negatively correlates with the efficiency of sleep (p<0.05). Our study show that paediatric patients with drug-resistant epilepsy, cerebral palsy and mental retardation are frequently affected by OSAS. In addition, the severity of OSAS strongly influence the quality of sleep. Children with epilepsy report sleep deprivation as a significant seizures-precipitating factor. An improvement in seizure frequency is seen with the treatment of OSAS. Results support that the screening for SBD in the medically refractory epilepsy population and appropriate intervention strategies may lead to overall improved night oxygen saturation and seizure control.

P63 Rhinitis: risk factor for persistence of sleep disordered breathing in paediatric patients after adenotonsillectomy?
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Background: Sleep disordered breathing (SDB) is common in children and associated with several adverse outcomes. Adenotonsillar hypertrophy is the most commonly identified risk factor. Many children undergoing adenotonsillectomy (AT) are prescribed nasal continuous positive airway pressure (CPAP) at home. This treatment is associated with poor adherence and frequent treatment discontinuation.

Aims and objectives: The main goal was to analyze the rate of persisting symptoms in pediatric patients treated with AT. We also looked for clinical factors which might act as negative prognostic factors for symptoms persistence.

Methods: Retrospective study of pediatric patients referred to a tertiary hospital for SDB in 2012-2013. In patients submitted to AT we evaluated the persistence of symptoms through a telephone questionnaire applied to parents. We investigated demographic and clinical factors that could negatively affect the surgery outcome.

Results: 191 patients were included; 55% of which underwent AT. Telephone contact was possible in 86%. Median age was 5.8yrs(0.6;16.5), 56.2% male. The prevalence of obesity, rhinitis and craniofacial anomalies was 20%, 14% and 11%, respectively. Median age at surgery was 4.5yrs(1.3;17); median time to follow-up was 15,5mths(intequartile range:9.6-27.6). Persisting symptoms were reported in 32% and were more frequent in patients with rhinitis(p=0.019). Sex, age at surgery, obesity and craniofacial anomalies did not correlate with symptoms persistence.

Conclusion: A significant number of patients have persisting symptoms at follow-up after AT. Rhinitis seems to be related to increased risk of persistent SDB. Data suggests need for long-term follow-up and management of associated comorbidities.

P64 Declarative and non-declarative memory consolidation in children with sleep disorder breathing
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Healthy sleep is essential in children’s cognitive, behavioral, and emotional development. However, remarkably little is known about the influence of sleep disorders on different memory processes in childhood. In the present study we examined the effect of sleep disorder on declarative and non-declarative memory consolidation by testing children with sleep-disordered breathing (SDB). We used...
a story recall task to measure declarative memory and Alternating Serial Reaction Time (ASRT) task to assess non-declarative memory. This task enables us to measure two aspects of non-declarative memory, namely general skill learning and sequence-specific learning. There were two sessions: a learning phase and a testing phase, separated by a 12-hour offline period with sleep. Our data showed that children with SDB exhibited a generally lower declarative memory performance both in the learning and testing phase, but the consolidation during the offline period was similar in the SDB and the control group. In addition, we observed association between snoring events and declarative memory performance. In the case of non-declarative memory, the SDB group showed intact learning as well as consolidation of both sequence-specific and general skills. These findings suggest that disruption of sleep has a differential effect on the different memory types (declarative vs. non-declarative) and stages (online vs. offline). Creating more sophisticated neuropsychological profiles about the cognitive dysfunctions could not only give us deeper insight into the effect of sleep on the developing brain and memory functions, but also can help develop more effective methods of rehabilitation and treatment.

P65 Comparison Between Parent Reported Usage and Machine Download Data of Children on Home Long Term Non-Invasive Ventilation
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Introduction: Home long term non-invasive ventilation (NIV) is increasingly used to treat a range of paediatric conditions. Until recently our hospital has relied on parental reporting to assess NIV adherence as usage data was very limited or not available. However, newer machines can store data for subsequent download. Aim: We hypothesised that parents over report adherence to NIV. We aimed to compare parent reported NIV usage with that from the machine downloads.

Methods: The parents of 51 children (29 [57%] Male, 22 [43%] Female, aged 1-16 (mean 9yrs), including 22 [43%] with neuromuscular disease, 18 [35%] with obstructive sleep apnoea and 3 [6%] with central hypoventilation) on home NIV who were consecutively admitted to the Children’s Sleep & Ventilation Unit from March to October 2014 for follow up sleep studies were asked to complete a questionnaire. Questions included how many nights their child had used the machine in the past week and number of hours used each night. Their responses were compared to the data from the machines.

Results: 11/51 (22%) of parents over reported whilst 2/51(4%) under reported the number of nights their child had used NIV. Of the 8 children who had not used NIV at all the previous week, 6 parents reported they had not used NIV, 1 said they used it for 2 nights and 1 every night that week. The mean number of hours used per night correlated well with the number of hours NIV was reported to be used (r

P66 Environment in pediatric wards: sound, light and temperature
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The relation between sleep and disease is particularly important in hospitalized children, affecting quality of life; there are several sleep disruptors that can lead to sleep deprivation, as a consequence of the disease or related to hospital environment.

Aims: To describe 24 hours patterns of sound(S), light(L) and temperature(T) levels at the bedside and at the hallways of pediatric wards; to verify it’s adequacy to World Health Organization recommendations.

Methods: S, L and T were measured in 5 pediatric wards for 3 days with appropriate equipment and assessed in 5-minute intervals. Three periods were considered: daytime, evening, night-time. Recommended values: maximum light 100 Lux (5 Lux at night), maximum sound 45dB, temperature 20-24°C. Descriptive and comparative statistics were performed.

Results: In all wards the intensity of S was higher than desirable; during 84.6% of evaluated time the S intensity was above 45dB (lower at night, p<0.001). L intensity values were within desirable limits for 85.5% of evaluated time, being reduced at night (p<0.001). The T was below 24°C during 78.1% of total time, without any value below 20°C (lower at night, p<0.003). Values differed between wards (p<0.001) and between room and hallway (p<0.001).

Conclusions: The S and T in room and hallway were higher than recommended. The luminosity was adequate. The values were different between the 5 wards; it may be due to different levels of care, pathologies and ages, but it reveals absence of rules regarding environmental factors. Comprehensive studies are necessary to evaluate the discrepancy between real and recommended values and the impact of environmental variables on disease recovery.

P67 Psychiatric aspects and confounding factors in mothers of asthmatic children
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Background: Chronic conditions in children significantly influence the quality of life in the parents. Many people with chronic pulmonary conditions and their family members need psychiatric assistance. Materials and methods: This was an observational cross-sectional analytic study with completion of questionnaire by participants. All mothers of asthmatic children presenting to pulmonary specialty clinic at Masih Daneshvari Hospital from 2011 to 2013 which included 182 individuals were included in the study with their agreement and after being ensured of privacy of information.

Results: Mean age of participants was 33±5 years and the average number of their children was 2±1. Number of participants with high scores in the disease range (≥2.5) were 17% for anxiety, 2% for obsessive compulsion, 15% for aggression and 15% for reference idea. Smoking had significant correlation with physical complaints (P

P68 Long- term Parental Satisfaction with Adenotonsillectomy – a Population Study
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This study reports the presence of sleep disordered breathing (SDB) symptoms among first graders. We evaluated the severity of symptoms and parental satisfaction in children who had undergone adenotonsillectomy (T&A) compared to children who never had T&A. A population-based, cross-sectional study was conducted. Parent-reported questionnaire data including age, weight, height, BMI, history of T&A and SDB symptoms (snoring intensity, observed dyspneas, mouth breathing during sleep) were analyzed.

Of 3,580 eligible children, 2,504 (69.9%) returned questionnaires. 259 (10.3%) children had a history of T&A. Within this group, 76% of parents were still satisfied with their child’s outcome after surgery. The satisfaction rate decreased from 88.9% in those who had surgery within 1 year to 71.3% in those who had surgery ≥3 years prior. Mean values of intensity for all analyzed SDB symptoms
on a 5-point scale were significantly higher for children who had ever undergone T&A when compared to those who never underwent surgery (eg, snoring (2.11 vs 1.87; p=0.0004), dyspneas (1.64 vs 1.22; p<0.0001) and mouth breathing during sleep (2.95 vs 2.58; p<0.0001)). For those who had undergone T&A, 24% of caregivers were not satisfied with the surgical outcome and symptom intensity was highest (snoring=3.16, dyspneas=2.20, and mouth breathing=4.23) for these children.

Mean SDB symptom intensity was significantly higher in children who had undergone T&A when compared to those who had not. Elevated symptom intensity in those children whose caregivers were not satisfied after T&A suggests possible SDB recurrence and need for further evaluation.

P69 Snoring but not BMI influences the aggressive behavior and concentration problems in children

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Sleep-disordered breathing is an important risk factor for neuropsychological impairment in children. This study was conducted to estimate the prevalence of sleep-disordered breathing in a population of first graders and to determine the association between behavior problems, body mass index (BMI) and snoring.

A population-based, cross-sectional study was conducted using a parent-reported questionnaire. The study evaluated 2,474 first-graders. Data including age, weight, height, BMI, snoring intensity, and problems with child behavior were analyzed.

Of 3,480 eligible children, 2,474 (71.1%) returned completed questionnaires. Of these, 72% were reported to be non-snorers, 28% snorers, and 6.4% habitual snorers. There was a positive linear association between behavior impairment and snoring severity measured on a 5-point scale, with highly significant differences between each of five snoring intensity groups (p<0.00001). Compared to non-snorers, snorers in the normal-weight and overweight subgroups had significantly more aggressive behavior (p<0.0001; p=0.002, respectively) and more concentration problems (p<0.0001; p=0.03, respectively). There was no significant difference in aggressive behavior and concentration problems intensity in the screened groups of obese and normal subjects (p=0.70; p=0.79, respectively).

Behavior problems were positively associated with increasing snoring frequency. However, there were no differences in the prevalence of behavioral or concentration problems between obese and nonobese first-graders studied.

P70 Central apneas in childhood’s Obstructive Sleep Apnea Syndrome

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Here we try to explain the role of central apneas in children diagnosed of OSAS beginning with the age of 1 year. Our aim was to detect the prevalence of central sleep apnea, its associations, its behavior after surgical treatment in patients with OSAS.

Methods: We performed a retrospective study that included 771 children with OSAS. The period of inclusion was from 2003 to 2014. We included data of patients that underwent surgical treatment, tonsillectomy or adenoidectomy.

Results: We present the data of 771 patients with OSAS, from which 39.2% were girls and 60.8% were boys. The mean age was of 5.12 years (SD:3.15). Only 12.1% of the cases were born prematurely.

The mean value of CAI, that had a mean RDI of 12.91, was of 2.88 (SD:4.25). The prevalence of CAI >1 is 60.44%, maximum value 38.26.

The mean value of CAI in the group of girls was of 4.77, and 3.87 respectively (p<0.05).

We found a moderate, direct association between RDI and Central Apnea Index(CAI)(Pearson:0.477, p<0.05).

When comparing the age with CAI, it resulted to be an inverse and weak relationship (p=0.02).

We could evaluate the effect of the surgery on the CAI in 89 patients. We observed a significant loss of central apneas after the intervention with a p <0.05.

Conclusions: Central sleep apnea is common in children with sleep disordered breathing, where the prevalence of prematurely born children is barely significant. The severity of CAI can be predicted by the severity of RDI, due to the direct moderate relation between the two variables and that could explain its maintenance in OSAS. Another proof of this fact is the disappearance of the central apneas after the surgery.
evaluate some of these new, less obtrusive sensors.

Objective: To compare the apnea detection capability measured by less obtrusive sensors

Methods: 29 patients (mean age 63±18y) with respiratory problems are included in this trial for a one-night measurement. A new movement sensor (Sensotiss), a light cable embedded in the mattress, measures the breathing pattern by detecting changes in optical reflection. Heart function is measured by a wireless electrocardiogram (ECG) body patch with Bluetooth connection. As gold standard, a commercial polysomnography (Alice PDX, Respironics) and 1 lead standard ECG (GI-MAC5500) are chosen.

Results: ECG and breathing pattern compared with gold standard are shown in figure 1.

Conclusion: Breathing pattern and ECG derived from the new sensors looks promising in detecting apneas, but requires a thorough understanding for comparison with the golden standard. In the future, computerized algorithms for apnea detection based on these new signals could be of great clinical value for both screening and diagnostic purposes.

P73 Prevalence of Obstructive Sleep Apnea Syndrome in Patients with Acromegaly

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Objective: Acromegaly is often associated with obstructive sleep apnea syndrome (OSAS) with a prevalence of between 40 and 80%. The aim of the present study was to evaluate the prevalence of OSAS and identify clinical and sleep characteristics in patients with acromegaly.

Methods: A total of 28 acromegaly patients were included in this study prospective, cross-sectional study. Demographic data, anthropometric measurements and medical history were evaluated. Spirometry, chest x-ray, arterial blood gas analysis and full-night in-laboratory polysomnography were performed.

Results: Of the 28 patients (17 men, mean age 48.7±10.1 yrs), mean body mass index was 32.4±4.3 kg/m², neck circumference was 41.3±4.0 cm and waist circumference was 107.4±11.2 cm. Twenty patients (72.4%) had morbidities. Hypertension (50.0%), diabetes mellitus (42.9%), hypothyroidism (25.0%) and dyslipidemia (17.9%) were most frequent diseases. All patients reported snoring, whereas 20 (71.4%) had witnessed apnea and 13 (46.4%) had excessive daytime sleepiness. Epworth sleepiness score was 10.7±6.0 and 42.9% had a score ≥10.

Twenty five patients (89.3%) were diagnosed as OSAS (RDI≥5/hr). Polysomnography results showed that mean RDI was 38.8±28.1/hr, nadir SpO2(%) was 80.8±8.5 and mean SpO2(%) was 92.7±4.1. A total of 21 patients were deemed to be candidates for positive airway pressure (PAP) treatment.

Conclusions: Our results confirm a high prevalence of OSAS (89.3%) in patients with acromegaly and provide evidence that the majority of patients are candidates for treatment with PAP. Therefore, newly diagnosed all acromegaly patients should be investigated in terms of OSAS.

P74 Effect of semi-recumbent position on severity of obstructive sleep apnea syndrome in patients with heart failure

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Objective: To evaluate some of these new, less obtrusive sensors.

Methods: 29 patients (mean age 63±18y) with respiratory problems are included in this trial for a one-night measurement. A new movement sensor (Sensotiss), a light cable embedded in the mattress, measures the breathing pattern by detecting changes in optical reflection. Heart function is measured by a wireless electrocardiogram (ECG) body patch with Bluetooth connection. As gold standard, a commercial polysomnography (Alice PDX, Respironics) and 1 lead standard ECG (GI-MAC5500) are chosen.

Results: ECG and breathing pattern compared with gold standard are shown in figure 1.

Conclusion: Breathing pattern and ECG derived from the new sensors looks promising in detecting apneas, but requires a thorough understanding for comparison with the golden standard. In the future, computerized algorithms for apnea detection based on these new signals could be of great clinical value for both screening and diagnostic purposes.

P75 Validity and predictive value of the ApneaLinkTM in the identification of sleep apnea in patients with stable chronic heart failure

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Objective: To evaluate some of these new, less obtrusive sensors.

Methods: 29 patients (mean age 63±18y) with respiratory problems are included in this trial for a one-night measurement. A new movement sensor (Sensotiss), a light cable embedded in the mattress, measures the breathing pattern by detecting changes in optical reflection. Heart function is measured by a wireless electrocardiogram (ECG) body patch with Bluetooth connection. As gold standard, a commercial polysomnography (Alice PDX, Respironics) and 1 lead standard ECG (GI-MAC5500) are chosen.

Results: ECG and breathing pattern compared with gold standard are shown in figure 1.

Conclusion: Breathing pattern and ECG derived from the new sensors looks promising in detecting apneas, but requires a thorough understanding for comparison with the golden standard. In the future, computerized algorithms for apnea detection based on these new signals could be of great clinical value for both screening and diagnostic purposes.
Background: Sleep apnea is an important comorbidity in heart failure (HF) with a large impact on quality of life and prognosis. However, diagnosing sleep apnea based on clinical parameters is difficult and polysomnography, considered as the gold standard, is not widely available. Therefore, we aimed to assess the validity of the ApneaLink™ as a screening tool for the identification of sleep apnea in a population with stable HF and to assess the predictive value of the ApneaLink™ compared to known clinical risk factors.

Methods: 100 patients with stable HF had simultaneous recordings of home-based polysomnography (PSG) and the ApneaLink™. Intraclass correlation (ICC), sensitivity and specificity were calculated for PSG versus ApneaLink™. A Bland and Altman plot and receiver operator curves were constructed. Logistic regression analyses were performed to assess the predictive value of the ApneaLink™ compared to known clinical risk factors.

Results: 90 valid ApneaLink™ measurements were obtained. There was high agreement between the ApneaLink™ and PSG (ICC = 0.85). The optimal threshold was for apnea-hypopnea index >15/h (area under the curve (AUC) 0.94). Sensitivity and specificity were high with 92.9% and 91.9%, respectively. The ApneaLink™ (2 = 66.74, p < .001) was correctly classifying 92% of the patients and explained 60% of the variance in having sleep apnea.

Conclusion: The ApneaLink™ can help specialists in identifying patients at risk of having sleep apnea besides the known clinical risk factors. ApneaLink™ is a useful screening tool to exclude the presence of sleep apnea and only refer high risk HF patients for a more extensive PSG.

P76 Which is the ideal tool to assess atherosclerosis risk in obstructive sleep apnea? Intima Media Thickness (IMT) or Mean Platelet Volume (MPV)

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Background: Obstructive sleep apnea (OSA) is associated with atherosclerotic cardiovasculardiseases (CVD). Mean platelet volume (MPV) is a new parameter associated with atherothrombosis. In this study we aimed to evaluate the relationship between MPV and cardio intima-media thickness (IMT) in patients with OSA.

Methods: One hundred five subjects evaluated for OSA underwent overnight polysomnography. Patients with cardiac disease or atherosclerotic risk factors and other chronic diseases were excluded from the study. Fifty subjects were included. Carotid IMT was measured with ultrasonography. Venous blood samples were obtained for biochemical tests and MPV measurement. Subjects were divided into three groups according to OSA severity: 1- control subjects: apnea-hypopnea index (AHI) <5, 2-patients with mild to moderate OSA (AHI: 5-30), 3-severe OSA (AHI>30).

Results: Patients with severe OSA had an increased IMT compared to control subjects (p=0.015). Significant correlation was determined between IMT and AHI, oxygen saturation loss index (ODI), mean oxygen saturation (Mean SpO2) value. MPV was not correlated with OSA severity and there was not any significant correlation between IMT and MPV. The only correlation was found between MPV and C-reactive protein (r=0.332, p=0.028).

Conclusions: Our findings suggested that IMT is more reliable than MPV in determining the risk of atherosclerosis in patients with OSA. Further researches are needed to confirm these results.

P77 Rapid Eye Movements In Non-REM Sleep In A Patient With Anxiety Disorder

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Fifty-year old male patient was referred to our sleep clinic for planning of treatment for obstructive sleep apnea syndrome (OSAS) with his polysomnographic (PSG) study revealing apnea-hypopnea index of 78 events/hour. He complained of snoring, excessive sleepiness and witnessed apneas. He underwent septoplasty surgery one year ago but his symptoms did not resolve at all. He was on telmisartan, atorvastatin and paroxetin medications for hypertension, hyperlipidemia and anxiety disorder. Continuous positive airway pressure (CPAP) titration was ordered to see if it is effective and to determine the optimal pressure. It was performed with an autotitrating CPAP machine during full-night PSG with a technician in attendance.

The interesting finding in the PSG recordings was prominent rapid and slow eye movements throughout the study. These frequent eye movements could be due to prolonged rapid eye movement (REM) rebound secondary to cessation of selective serotonin re-uptake inhibitor (SSRI) medication if the patient was not still on paroxetin treatment. Another possible cause for REM rebound could be effective elimination of the obstructive events. But the excessive rapid eye movements were not noted in REM sleep, but in non-REM (NREM) sleep. These NREM eye movements is an outcome of the medication the patient was using, that is paroxetin (Figure 1).

SSRIs which are most commonly prescribed drugs for depression, anxiety and panic disorders all over the world, induce prominent rapid eye movements as well as slow-rolling eye movements in NREM sleep. This unique PSG feature is important in scoring PSG recordings of patients using SSRI treatment.

30-second epochs of N2 (a), REM sleep (b), awake periods (c). Paroxetin-induced rapid and slow-rolling eye movements are in stage2 non-REM sleep (a).
P79 Effect of auto-CPAP therapy on functional parameters of upper respiratory tract in patients with BA combined with OSASH
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2 Pulmonology, National Institute of Phthisiology and Pulmology named after F.G. Yanovska NAMS of Ukraine, Kiev, Ukraine

Aim of study - to investigate the effect of auto- CPAP therapy on parameters of rhinomanometry in patients with BA combined with OSASH.

Materials and methods: questionnaires, general clinical examination, spirometry, front active rhinomanometry, polysomnography.

Results. The most common anatomical peculiarities in the upper respiratory tract in studied patients were increase of lingual tonsil – in 14 (70.0 %) and hyperplasia of the soft palate – in 12 (60.0 %) patients, which was combined with an increase in the soft palate uvula – in 6 (30.0 %) patients. The physiological narrowing of the nasal passages noted in 3 (15.0%) subjects. The combination of different anatomical features and pathological processes occurred in 15 (75.0%) of 20 patients. Following the appointment of a 10-day course of auto- CPAP therapy was defined significant decrease of IAH (27.6 ± 4.6)/h to (6.9 ± 2.5)/h (p < 0.05). Rhinomanometry indices showed increase in total nasal flow – as during exhalation -from (478 ± 72) ml/s to (684 ± 108) ml/s; p < 0.05, and during inspiration - from (448 ± 76) ml/s to (688 ± 96) ml/s; p < 0.05.

Conclusions: Course of auto-CPAP therapy improve nasal permeability in patients with BA combined with OSASH.

P80 Cardiac remodeling in mild and severe obstructive sleep apnea
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The effect of obstructive sleep apnea (OSA) on cardiovascular system proved in many studies, but cardiovascular pathology in patients with OSA of different severity studied less.

Aim: To study cardiac remodeling and hemodynamic in patients with mild and severe OSA.

Materials and methods: 15 mild OSA patients (respiratory disturbance index (RDI) 5-15 (polysonomography)) (I group), age 48.9±3.0 years, 30 severe OSA patients (RDI>16) age 49.0±2.74 years (II group). Left ventricular hypertrophy (LVH) was defined by left ventricular mass index (LVMI) (male ›115 g/m², female›95 g/m²) – in 14 (70.0 %) and hyperplasia of the soft palate – in 12 (60.0 %) and hyperplasia of the soft palate – in 12 (60.0 %) patients.

Results. LVH was defined in 24% and 55% in I and II groups respectively. PAH was detected in 12 and 21% in I and II groups respectively. Left ventricular wall thickness (LVWT) was 0.98±0.06 cm in I group and 1.14±0.05 cm in II group (p<0.05); interventricular septal wall thickness (IVST) was 1.04±0.07 cm and 1.22±0.05 cm in I and II groups respectively (p<0.05). Transmural E/A ratio was 1.37±0.17 and 1.07±0.07 in I and II groups (p<0.05). Isovolumic relaxation time (IVRT) was 86.0±5.33 and 97.3±6.99 in I and II groups (p<0.05).

Conclusions. Our results demonstrate high prevalence of LVH and PAH in patients with OSA, especially in severe OSA. Severe OSA negatively affected the LVH and diastolic left ventricular function.

P81 Sleepiness scale evaluation of OSAS in determining the severity of the disease role
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Introduction and background: The correlation of level of disease found in the clinical studies done up to date in the patients admitted with the prediagnosis of Obstructive Sleep Apnea Syndrome (OSAS) evaluated by Epworth Sleepiness Scale (ESS) and Berlin Sleep Questionnaire Score (BSQS) was weak. We aimed to evaluate the relationship between EUS and BUS and nocturnal hypoxia parameters.

Material - methods: OSAS Ambulatory sleep test device (Watchpat; Itamar Med Ltd., Israel) attached to the wrist which uses noninvasive fingertip probe for detecting signals of changes in automatic nervous system for sleep test for the OSAS patients who underwent an overnight home sleep test. Berlin sleep questionnaire, Epworth sleep questionnaire and sleep disorders overall evaluation form in patients with 48 questions was used evaluating the symptoms of these cases.

Results: There was correlation among total all night AHI, ODI, RDI (p<0.0001, KK:0.218 , p<0.0001 KK:0.225 , and p<0.0001 KK:0226) with BSS. There was correlation among total all night AHI, ODI, RDI (p<0.0001 ,KK:0.374,p<0.0001 KK:0.360 , and p<0.0001 KK:0364 ). There was a strong correlation between ESS and BSQS (p<0.0001 KK:0464). There also was statistically significant correlation between the minimum oxyhemoglobin saturation, average oxyhemoglobin saturation and oxyhemoglobin saturation below 90% of the time as nocturnal hypoxia index and BSS and BSQS.

Conclusion: As a result of this study it was observed that the severity of OSAS severity and nocturnal hypoxia is correlated with indicators of ESS and BSQS.

P82 Screening for sleep apnea in patients with cardiovascular diseases via overnight pulse oximetry in outpatient clinic
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Introduction. The incidence of sleep apnea (SA) in patients with cardiovascular diseases is high (30-50%) and requires a simple and effective screening method. The purpose of the current study was to evaluate the usability of screening for SA via overnight pulse oximetry (OPO) in patients with cardiovascular diseases in outpatient clinic.

Methods. Data were obtained from patients who visited the cardiologist in outpatient department between 16.05.14 and 25.08.14. OPO was assigned to the subjects with a high pre-test probability of SA, based on the following diagnoses in patient’s chart: arterial hypertension, ischemic heart disease, atrial fibrillation, sleep-related arrhythmias, chronic heart failure. The evaluation of SA was carried out with PulseOx 7500 device (SPO Medical, Israel) with subsequent automated processing of the records performed by software VitaScore.

Results. A total of 315 patients were analyzed, 283 (89.9%) of them met inclusion criteria. SA was already detected in 2 (0,63%) subjects at the time of appointment. OPO was performed in 203 patients (71,7% of the inclusion group). Desaturation index (ID)-15 per hour was detected in 99 patients (48,8%), ID>30 per hour - in 40 (9,7%), which corresponds to moderate and severe SA respectively. Thereby with the implementation of screening for SA via OPO, the detectability of SA became 49,5 times greater.

Conclusions. The study confirms high prevalence of SA in patients with cardiovascular diseases. Screening for SA using OPO in outpatient clinic significantly improves the detection of the disorder, and helps to form group of patients for referral to a sleep study.

P83 effect of CPAP therapy on pulmonary artery pressure in OSA patients
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2 Cardiology department, Faculty of medicine, Mansoura University, Egypt

Background: There has been uncertainty until recently as to whether OSA, is sufficient to cause persistent daytime pulmonary hypertension and right ventricular dysfunction.

Objectives: The aim of this study, were to investigate whether OSA by itself without any other cardiac or lung disease can lead to pulmonary hypertension , and to assess the effect of CPAP therapy

ABSTRACTS
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on pulmonary artery pressure.

**Subjects and Methods:** The study was performed on fifty-four OSA patients with AH<sub>H</sub>-5 and without any heart or lung diseases. The selected patients were classified according to AHI into two groups: 1) Severe OSA and Non severe OSA patient. And also were classified according to pulmonary artery pressure measurement into two groups: a) OSA patients with pulmonary hypertension and b) OSA patients without pulmonary hypertension. All patients were subjected to thorough history taking including Epworth sleepiness scale and Berlin questionnaire, calculation of BMI, pulmonary function tests, polysomnography, echocardiography and CPAP therapy.

**Results:** PH was present in (44.4%) of OSA patients. There were significant higher PASP and mPAP in severe OSA patients: There were significant reduction in both MPAP& PASP after 6 months of CPAP therapy in both mPAP, PASP .

**Conclusion:** OSA is associated with of pulmonary hypertension which increased with its severity. Improvement of pulmonary hypertension through controlling OSA by CPAP therapy signify that OSA play a crucial role in pathogenesis of pulmonary hypertension.

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**P84 Sleep characteristics and the risk of obstructive sleep apnoea syndrome in commercial bus drivers**

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2 Serbian Institute for Occupational Health, Belgrade, Serbia
3 Clinic for Pulmonology, Clinical Centre of Serbia, Belgrade, Serbia

**Introduction:** Inadequate sleep quality and quantity can lead to excessive daytime sleepiness and increase risk of traffic accidents.

**Objective:** This cross-sectional study aimed to identify self-reported sleep quality and quantity, prevalence of excessive sleepiness, risk of obstructive sleep apnoea syndrome (OSAS), drowsy driving and traffic accidents in a sample of commercial bus drivers.

**Methods:** Eighty-nine drivers in two bus depots in Belgrade, Serbia were interviewed using a generic questionnaire (demographics, driving and sleep characteristics, traffic accidents in the last year), Pittsburgh Sleep Quality Index (PSQI<5 was indicative), Epworth sleepiness scale (ESS<10 was indicative), Berlin (positive in 2/3 categories =high risk) and STOP-BANG questionnaire (3/more positive answers=high risk). Anthropometric measurements (weight, height, neck, waist and hip circumference) were performed.

**Results:** All drivers were male; mean age 42 years, mean Body mass index (BMI) was 27.5, 69.7% were overweight (BMI>25), 48.3% had neck circumference >40cm. Average driving experience was 16.1 years, 50.69 hours per week. Mean sleep duration was 6.9 hours, 32% slept less than 6 hours a day. Sleepiness while driving was reported by 36% of drivers, and 15.1% had traffic accidents. Mean ESS score was 4.11, ESS>10 had 8% of drivers. Mean PSQI score was 2.57, PSQI=5 had 9% of drivers. Berlin questionnaire revealed high risk of OSAS in 12.6%. STOP BANG in 49.4% of the participants.

**Conclusion:** Prevalence of impaired sleep, excessive sleepiness and risk of OSAS in this sample of bus drivers is similar to findings in other studies and demands further investigation.

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**P85 The relationship between cardiometabolic disorders and obstructive sleep apnoea syndrome**

Doina Adina Todea 1, Andreea Codruta Coman 1

1 Department of Pneumology, University of Medicine and Pharmacy Iuliu Hatieganu, Cluj-Napoca, Romania

Nowadays, obstructive sleep apnea (OSA) is considered a cardiometabolic disorder. The purpose of this study was to evaluate the prediction of arterial hypertension and presence of diabetes mellitus between patients with OSA. We examined the records of 302 patients referring to our Sleep Laboratory Center, between 2011-2013, to have nocturnal cardio-respiratory poligraphy for the evaluation of OSA. Including criteria was cut-off value of ≥15 events/h according to the AH1. 195 patients (64.56%) had severe OSA (≥30 events/h); 189 patients (62.57%) had hypertension and 135 (44.70%) had diabetes mellitus. Univariate analysis for categorical data has found statistical significance for ischemic cardiopathy (p<0.01); snoring (p=0.03); restless sleep (p=0.02). Receiver operating characteristics (ROC) analysis reveals statistical significance for age (p<0.01, AUC=0.69), neck circumference (p<0.01, AUC=0.67), abdominal circumference (p<0.01, AUC=0.70), BMI (p<0.01, AUC=0.70), glycemia (p<0.01, AUC=0.59), medium O2 saturation (p<0.01, AUC=0.70), oxygen desaturation index (p<0.01, AUC=0.63) and ESS (p=0.03, AUC=0.59). Multivariate analysis on logistic model retains body mass index and neck circumference.

We found a statistically significant association between diabetes mellitus and OSA severity (p=0.037). Type 2 diabetes mellitus is frequent between patients with obstructive sleep apnea, especially in moderate and severe forms of OSA. Regarding arterial hypertension, an increase of BMI by 1kg/m² would entail the risk of hypertension by 2.6%; an increase of 1 cm neck circumference would entail the risk of hypertension by 0.8%.

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**P86 Obstructive Sleep Apnea in patients referred for bariatric surgery**

Kristina Zihert 1, Irena Sarc 1, Tadeja Pintar 2, Matjaz Flezar 1

1 Laboratory for sleep related breathing disorders, University Clinic of Respiratory and Allergic Diseases Golnik, Golnik, Slovenia
2 Department of abdominal surgery, University Medical Centre Ljubljana, Ljubljana, Slovenia

**Background** Obese patients are often offered bariatric surgery as a method to lose weight. They are also more prone to have obstructive sleep apnea (OSA), and they pose, if they have OSA, higher perioperative risk. The aim of our study was to determine the frequency of OSA in patients referred to bariatric surgery.

**Methods** In this retrospective study we analyzed medical records of all patients that were referred to our Laboratory for sleep disordered breathing University Clinic Golnik, from Department of abdominal surgery University Medical Centre Ljubljana in years 2011-2014. Patients were divided in two groups: patients without OSA and those with OSA (apnea-hypopnea index (AHI)>5).

**Results** 35 patients were referred, 29 women (83%), age 46±10 years, body mass index (BMI) 43±7 kg/m², neck circumference (NC) 42±5 cm, Epworth sleepiness scale (ESS) 6±3, AHI 11±2, oxygen desaturation index (ODI) 19±21. Arterial hypertension (AH) was present in 23 (66%) and diabetes mellitus in 12 (34%) of patients. 17 (49%) patients had AHI>5, 10 (29%) had AHI>15, 4 (11%) had AHI>30, 3 (9%) patients meet criteria for obesity hypoventilation syndrome. Patients with OSA had more often AH (82% vs. 50%, p=0.047), were older (50±8 vs. 43±10, p=0.031), had higher NC (44±5 vs. 40±3, p=0.04) and lower pO2 (9.5±1.6 vs. 11.0±1.0, p=0.008). No statistical difference was observed when we compared different OSA subgroups between each other.

**Conclusions** Our cohort of patients consisted mainly of morbidly obese middle-aged women. Half of the patients had OSA. Those patients were older, had more often AH, higher NC, and lower pO2.

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**P87 A simplified model of screening obstructive sleep apnoea in elderly population.**

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2 CIBER Enfermedades Respiratorias, CIBERES, Madrid, Spain
3 Unitat de Biofisica i Bioenginyeria, Universitat de Barcelona, Barcelona, Spain

**Background** Due to increasing demand for sleep services, there is a growing interest in simplified models to detect obstructive sleep apnea (OSA). Previous studies have developed screening models for primary care in middle aged population but there is no data obtained in older population. AIM: To identify predictive characteristics that could be used in a screening model for severe OSA (AHI > 30) in elderly with OSA. We examined the records of 116 patients.

**Methods** 116 patients aged over 65 years with suspected OSA in which full PSG was performed were retrospectively analyzed. Univariate and multivariate logistic regression models were performed to identify variables predictive of severe OSA (AHI > 30) in elderly population.

**Results** No nocturnal cardiorespiratory polygraphy for the evaluation of OSA. Including criteria was cut-off value of ≥15 events/h according to the AH1. 195 patients (64.56%) had severe OSA (≥30 events/h); 189 patients (62.57%) had hypertension and 135 (44.70%) had diabetes mellitus. Univariate analysis for categorical data has found statistical significance for ischemic cardiopathy (p<0.01); snoring (p=0.03); restless sleep (p=0.02). Receiver operating characteristics (ROC) analysis reveals statistical significance for age (p<0.01, AUC=0.69), neck circumference (p<0.01, AUC=0.67), abdominal circumference (p<0.01, AUC=0.70), BMI (p<0.01, AUC=0.70), glycemia (p<0.01, AUC=0.59), medium O2 saturation (p<0.01, AUC=0.70), oxygen desaturation index (p<0.01, AUC=0.63) and ESS (p=0.03, AUC=0.59). Multivariate analysis on logistic model retains body mass index and neck circumference.

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was more effective on the identification of the more severe cases, SB had a higher sensitivity and specificity for OSA diagnosis and

**Conclusion:** Male gender and high 3%ODI levels were independently associated with severe OSA in the multivariate analysis. A cut off of 0.85 was chosen to maximize the overall diagnostic accuracy of the model, obtaining the following predictive values: sensitivity 82%, specificity 100%, PPV 100%, and NPV 73%.

**P88 Accuracy of Obstructive Sleep Apnea screening questionnaires on Brazilian population**

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2 - Postgraduation Program of Neurology, Federal University of the State of Rio de Janeiro UNIRIO, Rio de Janeiro, Brazil
3 - Medical Student, Federal University of the State of Rio de Janeiro UNIRIO, Rio de Janeiro, Brazil

**Introduction:** Obstructive Sleep Apnea (OSA) cause significant increase in morbidity and mortality. The golden standard for diagnosis is the polysomnography exam, but due to its high complexity, elevated cost and low availability, clinical evaluation with the application of screening questionnaires like the STOP BANG (SB) and the Berlin Questionnaire (BQ) are important for the diagnosis and triage of OSA.

**Objective:** To calculate the accuracy of the BQ and SB on the diagnosis of OSA.

**Methods:** Cross-sectional study carried out on an adult outpatient voluntary population on Gafrée e Guinle University Hospital. Patients were submitted to clinical evaluation, BQ, SB and to a full night polysomnography in laboratory.

**Results:** Forty eight patients were studied, 62.5% were male. The study’s age average was 45.6 years old. Twelve patients had an AHI of less than 5, 16 had mild OSA, 9 had moderate OSA and 11 had severe OSA. The BQ had a sensitivity of 83.3% and a specificity of 25% for OSA diagnosis. A higher AHI did not significantly increased the positivity of the BQ (p=0.26). The SB had a sensitivity of 94.4% and a specificity of 58.3% for OSA diagnosis. A higher AHI caused a significant increase in the positivity of the SB (p= 0.00).

**Conclusion:** Both questionnaires were equally easy to apply, but the SB had a higher sensitivity and specificity for OSA diagnosis and was more effective on the identification of the more severe cases, resulting on a better OSA screening tool in our population.

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**P89 Obstructive Sleep Apnea in patients submitted to ambulatory blood pressure monitoring: preliminary data**

Anaúcia Maranhão 1, Denise Neves 1, Maria Helena Melo 1, Júlio Cézar Filho 2, Lucas Ferreira 1, Silvia Simões 1, Marlos Moreira 1, Rafael Nigri 1

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**Conclusion:** Studies demonstrated that high percentage of patients with OSA have arterial systemic hypertension and OSA is considered as a possible cause for refractory hypertension. To identify the risk of OSA in patients subjected to ambulatory blood pressure monitoring (ABPM) through questionnaires, a cross-sectional study on adult outpatient population subjected to ABPM were performed. Normal values for arterial blood pressure were defined by mean systolic and diastolic blood pressures lower than 130 and 80 in the 24 hour period, 135 and 85 during vigil and 120 and 70 during sleep. Nocturne decrease in blood pressure (ND) was considered absent if equal to zero, decreased if between 0 to 10% and preserved if higher than 10%. Refractory hypertension was considered if the patient had blood pressure values higher than the upper limits while using three or more antihypertensives with at least one diuretic included. A total of 30 patients were included in the study so far, with a mean age of 63.1 years and 40% males. 70% of the population studied was found to have a high risk for OSA. A high risk for OSA resulted on higher means for blood arterial systolic and diastolic pressures in the vigil periods (133 and 79), in the 24 hour period (131 and 77) and also while sleeping (122 and 71) when compared to the low risk for OSA group that had mean pressures for the 24 hour period equal to 125 and 73, for the vigil period 126 and 75 and for the sleeping period 119 and 72. Refractory hypertension patients tested positive on. This is an indicative of the necessity of the polysomnography exam, especially because several studies revealed a decrease on blood pressure and cardiovascular risk with adequate OSA treatment.

**P90 Sleep quality through overnight standard polysomnography in patients with cerebral palsy.**

Lilian C Giannasi 1,2, Miriam Y Matsui 3, Sergio R Nacif 3, Israel R Santos 1, Jose B O Amirom 3, Claudia S Oliveira 3, Luis V Oliveira 3, Monica F Gomes 3

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2 - Bioscience, UNESP, São José dos Campos, Brazil
3 - Sleep Disorders Lab, UNINOVE, Sao Paulo, Brazil

**Objective:** To calculate the accuracy of the BQ and SB on the diagnosis of OSA.

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P91 Validation of the Watch PAT 200 (Itamar Medical Ltd.) as a Diagnostic Procedure for Detection of Sleep Disordered Breathing (SDB) in Patients with Heart Failure
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This study examines the validation of a portable device using a peripheral arterial tonometry - the Watch PAT 200 - as a measurement of SDB in patients with heart failure, especially in patients with heart failure with normal ejection fraction (HFNEF). A high prevalence (about 70%) of SDB in patients with heart failure is known. While 40% of HFNEF patients are suffering from obstructive sleep apnea (OSA), 30% are diagnosed with central sleep apnea (CSA). For validation of the Watch PAT, 20 patients with HFNEF are investigated. Measurements are additionally performed within a scheduled polysomnographic examination (PSG) on the cardiologic ward of the Charité Berlin. The Watch PAT is used in the diagnostic night and the therapy night. The data of both measurements (PSG and Watch PAT) will be analyzed and compared in reference to specific types of SDB. Thus, it shall be shown that the Watch PAT can detect therapy evoked changes in apnea-hypopnea-index (AHI), oxygen-desaturation-index (ODI) and oxygen saturations.

At this point 10 patients with HFNEF are examined. All of them are diagnosed with SDB, detected by both PSG and Watch PAT. In particular, seven patients had primarily OSA, while three patients had primarily shown CSA. This was only detected by PSG. So far it seems likely that the Watch PAT can detect SDB in patients with HFNEF but it is not able to distinguish between OSA and CSA. Furthermore, it shall be investigated if the Watch PAT can detect SDB in patients with heart failure with reduced ejection fraction. Additionally, it shall be analyzed if haemodynamic changes under therapy can be seen in the raw data.

P92 Polysomnographic data, sleep quality, sleepiness and co-morbidities in patients with REM-related obstructive sleep apnea
Natalija Ivkovic 1, Renata Pecotic 1, Tea Galic 1, Maja Valic 1, Vanja Dogas 1, Goran Racic 1, Zoran Dogas 1
1 Neurosciences, University as Split School of Medicine, Split, Croatia

Purpose: To determine differences in polysomnographic values, sleep quality, sleep-related symptoms and co-morbidities between the patients suffering from REM-related OSA and controls suffering from OSA equally distributed in REM and non-REM.

Methods: From the Split Sleep Medicine Center data pool of 500 patients with polysomnography (PSG) recordings, 38 patients with REM-related OSA were recruited, and 38 case control patients with non-REM OSA were identified when adjusted for age, gender, BMI and AHI. REM-related OSA was defined as follows: AHI≥5, AHI(REM)/AHI(REM)≥2, and REM-30 min. Whole-night PSG studies were performed on all patients using the Alice 5LE, and they responded to STOP, STOP-BANG, Berlin questionnaire, Epworth Sleepiness Scale, Stanford Sleepiness Scale and Pittsburgh sleep quality index.

Results: Patients with REM-related OSA were no different compared with controls on PSG data except they had greater snoring time (136.0±130.8 vs. 68.0±57.9 minutes, P<0.014). Arterial hypertension was more frequent in REM-related OSA group in comparison to control (18/35 vs. 10/38, P=0.027), and there was a tendency that they were less sleepy during the day in comparison to control on ESS score (6.4±5.3 vs. 7.8±4.8, P=0.224), and SSS score (2.6±1.4 vs. 3.1±1.3, P=0.099).

Conclusion: There were no significant differences between patients with REM-related OSA and control patients in objective data from sleep studies, but they had prolonged period of snoring. Subjective data indicated a tendency toward less pronounced sleepiness and more frequent co-existence of arterial hypertension in patients with REM-related OSA.

Cerebral palsy (CP) is a term employed to define a group of non-progressive neuromotor disorders caused by damage to the immature or developing brain, with consequent limitations regarding movement and posture. CP may impair oral pharynx muscular tonus leading to a compromised mastication and to sleep disorders (e.g.: obstructive sleep apnea). 15 adults with CP underwent bilateral masseter and temporalis neuromuscular electrical stimulation (NMES) therapy and its effect over masticatory muscle and sleep variables were evaluated through electromyography (EMG) and polysomnography (PSG), respectively, prior and post 2 months of NMES therapy. EMG consisted of 3 tests in different position: rest, mouth opening and maximum clenching effort (MCE). The EMG values in the resting position were 100% higher prior to therapy for all muscles analyzed (p<0.05); mean mouth opening rose from 38.0±8.0 to 44.0±10.0 cm (p=0.03) and MCE was significantly only for right masseter. PSG shown that AHI improved from 7.1/h to 1.7/h (p<0.05), total sleep time improved from 185 min to 250 min (p=0.04) and minimal SaO2 improved from 83.6±3.0 to 86.4±4.0 (p=0.04). NMES performed over a two-month period led to an increase in the electrical activity of the masticatory muscles at rest, opening and during isometric contraction and improved sleep variables, including the elimination of sleep apneas events in CP patients. This may be a novel therapy non-invasive option for this population. Further studies are needed.

P94 Pulmonary function and obstructive sleep apnoea syndrome in commercial drivers
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Introduction: There are limited and conflicting data on the association of pulmonary function and obstructive sleep apnoea syndrome (OSAS).

Aim: Identify the relation of pulmonary function parameters with polysomnographic characteristics in a sample of commercial drivers screened for presence of OSAS.

Methods: Dynamic spirometry and full night polysomnography (PSG, type I or type III) were performed in a sample of one hundred commercial bus and truck drivers in Belgrade, Serbia.

Results: All drivers were male, mean age 43.5 years, 75.8% overweight (body mass index, BMI≥25), 46 active and 20 ex-smokers. 25% reported respiratory diseases in personal history, but only 10% used medications. Pulmonary function tests were normal in 86% of participants, 4% had obstructive and 2% restrictive changes. Obstructive sleep apnoea was diagnosed in 58% of drivers, with mean apnoea-hypopnoea index (AHI) 19.7/h. When controlled for age, smoking and BMI, partial correlation analysis showed that both FEV1% and FVC% were significantly correlated to mean AHI in REM sleep, mean oxygen saturation in REM, as well as to minimal oxygen saturation during sleep. FEV1% was also significantly correlated to mean oxygen saturation during NREM sleep (=0.297, p<0.05). None of the tested spirometry parameters showed significant correlation to diagnosis or severity of OSAS.

Conclusion: Pulmonary function tests cannot effectively predict the presence of obstructive sleep apnoea syndrome, but may detect associated respiratory disorders, which are of major importance for treatment and prognosis in OSAS patients.

P93 Effects of neuromuscular electrical stimulation on the masticatory muscles and physiologic sleep variables in adults with cerebral palsy: a novel therapy approach
Lilian C Giannasi 1,2, Miriam Y Matsu 2, Sergio R Nacif 1, Israel R Santos 1, Jose B O Amorim 2, Claudia S Oliveira 2, Luis V F Oliveira 1, Monica F Gomes 2
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Cerebral palsy (CP) is a term employed to define a group of non-progressive neuromotor disorders caused by damage to the immature or developing brain, with consequent limitations regarding movement and posture. CP may impair oral pharynx muscular tonus leading to a compromised mastication and to sleep disorders (e.g.: obstructive sleep apnea). 15 adults with CP underwent bilateral masseter and temporals neuromuscular electrical stimulation (NMES) therapy and its effect over masticatory muscle and sleep variables were evaluated through electromyography (EMG) and polysomnography (PSG), respectively, prior and post 2 months of NMES therapy. EMG consisted of 3 tests in different position: rest, mouth opening and maximum clenching effort (MCE). The EMG values in the resting position were 100% higher prior to therapy for all muscles analyzed (p<0.05); mean mouth opening rose from 38.0±8.0 to 44.0±10.0 cm (p=0.03) and MCE was significantly only for right masseter. PSG shown that AHI improved from 7.1/h to 1.7/h (p<0.05), total sleep time improved from 185 min to 250 min (p=0.04) and minimal SaO2 improved from 83.6±3.0 to 86.4±4.0 (p=0.04). NMES performed over a two-month period led to an increase in the electrical activity of the masticatory muscles at rest, opening and during isometric contraction and improved sleep variables, including the elimination of sleep apneas events in CP patients. This may be a novel therapy non-invasive option for this population. Further studies are needed.
P95 Leg Thermal Therapy Improved Sleep Structure as well as Hemodynamics in Patients with Chronic Heart Failure
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Background: Insomnia is highly prevalent in patients with chronic heart failure (CHF), and affects their prognosis and quality of life (QOL). Systemic thermal therapy (STT) improved hemodynamics in CHF patents via vasodilation. Also, rising body temperature might improve their sleep. However, STT cannot be easily applied as a home therapy as for its specific and bulky facility. To make a practical home complementary therapy, we developed topical warming, leg thermal therapy (LTT), which heats only lower extremities. The aim of this study was to assess the effects of LTT on hemodynamics and sleep structure in CHF patients.

Methods: Eighteen inpatients with stable CHF (age: 55±12 years, male: 15, NYHA II-III) received LTT (heating at 45±C for 15 minutes followed by 30 minutes insulation) for 3 consecutive nights. Before and after the intervention, we evaluated vascular endothelial function indexed by flow mediated vasodilation response (%FMD), cardiac load, suggested by plasma brain natriuretic peptide (BNP) level, and sleep structure by polysomnography. Data was analyzed using Wilcoxon signed-rank test.

Results: Three nights consecutive LTT significantly improved %FMD (p<0.01) and BNP (p<0.05) in CHF patients. Moreover, LTT significantly decreased sleep stage N1 (p<0.05), and increased sleep stage N2 (p<0.05) without altering parameters on sleep disordered breathing.

Conclusions: Three nights LTT improved sleep structure as well as hemodynamics in the CHF patients without any adverse events. These results suggest that LTT have the potential to be an effective adjuvant home therapy to improve cardiac load, prognosis and QOL for CHF patients.

P96 Insomnia in adults with asthma: Results from the Norwegian HUNT 3 study
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Introduction. The literature shows contradictory results on the relationships between asthma symptoms and insomnia in adults. Objectives. The main objective of the study was to assess the prevalence of insomnia in persons with asthma, and to investigate the impact of asthma symptoms on insomnia, controlling for possible confounding factors such as age, sex, marital status, smoking, anxiety and depression.

Methods. Participants from a large population based cohort from a county in Norway (HUNT 3), with a self-reported diagnosis of asthma (N=1,342) were included in the analyses. Median age of participants was 54 years ranging from 19.5 to 91. Two thirds of the participants were women (n=830).

Results. According to the DSM-V criteria, 10.1% of those with asthma had insomnia. Logistic regression analyses showed that the risk of insomnia was halved in males compared to females (OR 0.54, CI 0.43 – 0.84). Persons more than 50 years of age had less insomnia than those in the younger age category. Other factors predicting insomnia were asthma symptoms during activity (OR 2.0, CI 1.2 – 3.5), frequent asthma symptoms during the day (OR 1.86, CI 1.2 – 2.78), anxiety (2.6, CI 1.65 – 4.10), and depression (2.58, CI 1.52 – 4.38). Evaluating current health status as bad was strongly related to higher risk of insomnia (OR 2.56, CI 1.6 – 4.0). P-values for all the above presented ORs were p<0.01 and thus highly statistically significant.

Conclusion. Insomnia is more common in persons with asthma compared to the normal population. Findings suggest that frequent asthma symptoms, as well as anxiety and depression, strongly increase the probability of suffering from insomnia.

P97 Quality of sleep in 45–69-year-old population in Russia
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Purpose: To examine characteristics of the Quality of Sleep in 45–69-year-old population in Russia/Siberia.

Methods: Under the screening of the WHO program “POST MONICA-psychosocial” (2003-2005 yr) random representative sample of man (n= 1770) and women (n= 2401) aged 45-69 years were surveyed in Novosibirsk. The sleep disturbances were studied via test Jenkins Sleep Questionnaire (JSQ).

Results: The sleep quality in the study population showed that men stated more often than women that they did not have or rarely had anxious thoughts while falling asleep (59% in men vs. 52% in women); they did not have any disturbing dreams or had them for less than three nights per month (68% in men vs. 65% in women); they had sound sleep (47% in men vs. 45% in women); and they were able to get a good night’s rest via the regular sleep (63% in men vs. 59% in women). P < 0.0000.

Conclusions: In 45–69-year-old population in Russia, high prevalence of sleep disturbances in the categories of sleep quality was associated with high prevalence of psychosocial factors.

Disclosure: Supported by Grant of Russian Foundation for Humanities N’140600227.

P98 Sleep drunkenness with hypersomnia: diagnosis and treatment of circadian rhythmicity in 14 severely affected patients.
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Background: Sleep drunkenness with hypersonmia (SDH) is a very disabling, often misjudged disorder with unknown etiology. Treatment is often unsuccessful. We studied circadian rhythmicity in severe SDH patients.

Methods: 24-hours melatonin curves, sleep architecture, comorbidity and treatment results were assessed in 14 patients with severe SDH. Mean (SD) age 14 (8.4) yr. Patients received melatonin, 5 hours before Dim Light melatonin Onset (DLMO). If necessary morning light treatment was added. Melatonin dose started with 1 mg and if necessary increased with 1 mg weekly until effect was seen. Maximum 5 mg. When melatonin was ineffective, methylphenidate 10 mg in the morning was started; in case of side effects patients received 100 mg modafinil.

Results: DLMO was normal in 6 patients and delayed in 8; in one patient with normal DLMO and in 7 with delayed DLMO morning salivary melatonin levels were elevated. Sleep architecture was normal in 8 patients. In 2 patients REM sleep was absent. ADHD, depression, Asperger, panic disorder, foetal alcohol syndrome, history of alcohol abuse and severe lack of self-confidence were co-morbidities. In five patients sleep drunkenness and hypersonmia decreased with melatonin, bright light treatment or chronotherapy. Four did respond poorly. One responded good on methylphenidate or modafinil. 5 patients did not improve at all. two of them, living alone
remained to be wakened up by a health care person who came at the patients home to wake them up.

Conclusion: In patients with SDH circadian rhythmicity and co-morbidity should be assessed and adequately treated. If necessary, methylphenidate or modafinil could considered.

P99 Multiple Sleep Latency Testing in Adults in Europe: 9 year follow-up.
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3 Department of Sleep Medicine, G. Papanikolaou Hospital, University of Thessaloniki, Thessaloniki, Greece

Background: Variability in the interpretation of Multiple Sleep Latency Test (MSLT) guidelines may affect the diagnosis and treatment of patients with central hypersomnia. In this study we assessed in progress the adoption and conformity to guidelines published in 2005.

Methods: The same questionnaire based on the 2005 MSLT guidelines was sent to the same sleep centres in 2005, 2009 and 2013. Results: 49 adult laboratories performing MSLT returned the questionnaire in 2005 and 2009 and 15 in 2005, 2009 and 2013. An increasing number of centers performed PSG before MSLT, whereas the limited use of sleep diaries and urinary drug screening did not change over 9 years. There were some variations in set-up and instructions across centres over time but no significant alterations in practice. Fewer centers performed pre-test calibrations (p=0.03) over the years. Sleep onset and REM latency scoring did not change. Significant alterations in defining abnormal normal daytime sleepiness were not found over years.

Conclusions: After 9 years of revised guidelines, variations across centres still occurred. However, there has been a move towards aligning practice.

P100 A Case report: Daytime sleepiness in an adult patient with Cystic fibrosis
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A 21-year-old male patient who had been diagnosed cystic fibrosis (CF) for 5 years, applied to our clinic for complaints including fever, cough and sputum, requiring hospitalization. During the treatment, the hospital crew has noticed an excessive daytime sleepiness (EDS), which leads serious performance decrements in the patient. His medication was not containing any drug affecting sleep. When inquired, patient suffered from EDS and his history was including interesting details such as failed examinations because of dropping asleep during the tests; hypnagogic hallucinations and neck weakness producing head drop after laughing. These complaints exist during the last two years.

Results: ESS of the patient was 14. When we evaluated subjective sleep quality using the PSQI, he showed poor quality of sleep. Full-night in-laboratory polysomnography revealed an AHI of 0.8/hour. His MSLT showed an average sleep latency of 0 minute and sleep onset REM periods (SOREMP) were found 3 out of 5 naps. There was also REM latency scoring did not change. There was no previous study describing narcolepsy accompanied by CF. In our case, an observation of EDS supported by a deep anamnestic investigation lead to narcolepsy diagnosis via appropriate diagnostic procedures. As a result, sleep-disordered breathing should be investigated in CF patients with high clinical suspicion.

P101 A good sleep makes you younger by the day
Vijay Bhasker Yetapu 1
1 Health and Education, VChangeU, Hyderabad, India

Background: Insomnia has become a global epidemic. It’s objective is to be the major health related problem for many people across the world.

Objectives: I have studied how today’s world of modern technology is encouraging people to work late nights and the presence of electronic devices like Wi-Fi routers, laptops, tablets and mobile devices within the bedrooms or homes and the lack of physical activity have become the primary cause of reduced sleep and disrupting sleep.

Methods: Being an IT support person I was troubleshooting my life for over 30 years to live a healthy life by following safety guidelines of mobile use, avoiding all types of electronic devices into the bedroom, having cable based internet and home network instead of Wi-Fi router. Along with physical activity, improving eating habits, reducing stress, and ceasing tobacco and alcohol use. Since indoor air pollution is dangerous to health, placing some interior plants has improved the air quality.

Encouraged and supported 342 members to follow the similar lifestyle from past 13 months.

Results: A simple 1 hour early morning walk, by adopting proposed lifestyle changes and early bed in the night could improve the quality of sleep. Of the 342 members we could see 92% of members reporting deep sleep of eight to nine hours daily.

6% of members who adopted the lifestyle changes but couldn’t indulge in any physical activity have reported four to six hour sleep. 2% of members reported six to seven hours of good sleep by following the guidelines.

Conclusions: From past 33 years I never seen a doctor for any reason and living a healthy life. A good sleep and a breath of fresh air can really improve the quality of living by adding few more healthy years to our life.

P102 Sleep, pulmonary function and quality of life in congenital myasthenia gravis: a case report of two siblings.
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3 Fisioterapia, Hospital da Luz, Sao Paulo - SP, Brazil

Background: Patients with Congenital Myasthenia Gravis (CMG) is characterized by clinical feature of fatigable weakness, and your response to treatment vary according to the molecular mechanism resulting from the genetic defect. The generalized muscle weakness also compromises the muscles of the oropharyngeal region, predisposing an individual to obstruction of the upper airways, especially during sleep. The aim of this study is to describe the clinical profile, pulmonary function, sleep architecture, and quality of life of two siblings with CMG.

Case Report: Patient 1, 52-year-old, Caucasian woman, was diagnosed with CMG at 5 years of age. Her initial symptoms were ptosis, hypotonia, generalized muscle weakness, and difficulty feeding, sucking, and swallowing. The patient underwent two thymectomy procedures and two hospitalizations due to deterioration of her clinical condition but did not require invasive mechanical ventilation. The patient remained active despite moderate physical limitations. Patient 2, 62-year-old, was diagnosed with CMG at 12 years of age with the same initial symptoms as his sister. The patient underwent a thymectomy and four admissions as a consequence of the disease, requiring invasive ventilatory support in the last two years. He maintained an active life with considerable physical limitations due to generalized muscle weakness.

Conclusions: We observed that patients with CMG have impaired pulmonary function, reduced maximal ventilatory pressures, and changes in sleep architecture that are directly correlated with disease progression.

Keywords: Congenital myasthenia gravis, sleep Disorders, Pulmonary Function, Sleep Apnea, Quality of Life.
Thematic Poster Session “OSA and Central Sleep Apnoea II”

P103 Comparison on Signs related to Sleep Disordered Breathing among Adult People with Down Syndrome between Two Different Races, Japanese and Scottish.

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2-Department of Sleep Medicine, University of Edinburgh, Edinburgh, United Kingdom
3-Sleep Apnea Center, Kyushu University Hospital, Fukuoka, Japan
4-Department of Cardiovascular Medicine, Kyushu University Graduate School of Medical Sciences, Fukuoka, Japan

Introduction: It is well known that people with Down syndrome (DS) tend to have sleep disordered breathing (SDB) because of their anatomical characteristics such as mid facial hypoplasia. Though many studies reported racial differences in the prevalence of SDB since the craniofacial structure differs among different races, the racial impact on SDB in DS people has not been elucidated. The aim of this study was to assess the racial differences on SDB between Scottish (S-DS) and Japanese (J-DS) DS adults.

Methods: To assess the racial impacts on SDB, we surveyed the demographics and the symptoms of SDB, i.e. snoring and apnoea, via questionnaires. We collected 268 and 525 replies from the S-DS (Age 32±11 years, Male 147) and the J-DS (Age 25±8 years, Male 288), respectively. We analyzed those data using Chi-square test and logistic regression analysis.

Results: The S-DS reported apnoea more often than the J-DS (44.5 vs 31.9%, p<0.05) although the prevalence of snore did not significantly differ (S-DS=83.1%, J-DS=79.4%). In the S-DS, aging was significantly and negatively related to apnoea (p<0.01). In the J-DS, however, male reported apnoea more often (p<0.05), and the obese and young did snoring (Body mass index p<0.01; Age p<0.01). The S-DS reported apnoea more often than the J-DS even after adjusted for age, sex and BMI (p<0.05), but the prevalence of snore did not show significant difference.

Conclusions: Although the people with DS similarly had SDB symptoms regardless of race, apnoea was observed more in the S-DS than the J-DS. The early evaluation and treatment of SDB is necessary in both countries.

P104 Efficacy of Home Single-Channel Nasal Pressure for recommending CPAP treatment

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Introduction: It is well known that people with Down syndrome (DS) tend to have sleep disordered breathing (SDB) because of their anatomical characteristics such as mid facial hypoplasia. Though many studies reported racial differences in the prevalence of SDB since the craniofacial structure differs among different races, the racial impact on SDB in DS people has not been elucidated. The aim of this study was to assess the racial differences on SDB between Scottish (S-DS) and Japanese (J-DS) DS adults.

Methods: To assess the racial impacts on SDB, we surveyed the demographics and the symptoms of SDB, i.e. snoring and apnoea, via questionnaires. We collected 268 and 525 replies from the S-DS (Age 32±11 years, Male 147) and the J-DS (Age 25±8 years, Male 288), respectively. We analyzed those data using Chi-square test and logistic regression analysis.

Results: The S-DS reported apnoea more often than the J-DS (44.5 vs 31.9%, p<0.05) although the prevalence of snore did not significantly differ (S-DS=83.1%, J-DS=79.4%). In the S-DS, aging was significantly and negatively related to apnoea (p<0.01). In the J-DS, however, male reported apnoea more often (p<0.05), and the obese and young did snoring (Body mass index p<0.01; Age p<0.01). The S-DS reported apnoea more often than the J-DS even after adjusted for age, sex and BMI (p<0.05), but the prevalence of snore did not show significant difference.

Conclusions: Although the people with DS similarly had SDB symptoms regardless of race, apnoea was observed more in the S-DS than the J-DS. The early evaluation and treatment of SDB is necessary in both countries.
P106 Impact of a mandibular repositioning device (MRD) on blood pressure in obstructive sleep apnea (OSA) patients noncompliant with continuous positive airway pressure (CPAP)

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Aims: ORCADES, a French prospective multicenter cohort study is evaluating the benefits of a custom-made MRD over 5 years in OSA pts noncompliant with CPAP. Interim data are presented at 3-month follow-up.

Methods: Sleep data, symptoms, BP, quality of life, side effects and MRD compliance are evaluated in OSA pts fitted with a CAD/CAM MRD (Narval CC™). Patient was hypertensive (HTN) if office systolic BP ≥140 mmHg and/or diastolic BP ≥90 mmHg. MRD treatment success (reduction of ≥50% in baseline AHI) was higher in non-HTN group (84% vs. 66%, p=0.0012). Improvement in oxygen saturation, symptoms or quality of life was equivalent in both groups with no weight change. In HTN group, SBP and DBP were similar in both groups (6.7 hours/night).

Results: Only 8% of pts stopped MRD due to side effects and mean usage was similar in both groups (6.7 hours/night).

Conclusion: Custom-made CAD/CAM MRD is effective in OSA pts noncompliant with CPAP with additional benefits on blood pressure.

<table>
<thead>
<tr>
<th>Group</th>
<th>BP</th>
<th>Baseline</th>
<th>3 month FU</th>
<th>Δ</th>
<th>P</th>
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<td>HTN</td>
<td>SBP mmHg</td>
<td>140.3 ±7.8</td>
<td>133.3 ±12.0</td>
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<td>&lt;0.0001</td>
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<tr>
<td>NON-HTN</td>
<td>SBP mmHg</td>
<td>122.3 ±9.0</td>
<td>123.5 ±13.2</td>
<td>1.5 ±12.8</td>
<td>NS</td>
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<td>HTN</td>
<td>DBP mmHg</td>
<td>88.6 ±8.0</td>
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<td>−6.8 ±10.2</td>
<td>&lt;0.0001</td>
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<tr>
<td>NON-HTN</td>
<td>DBP mmHg</td>
<td>74.1 ±7.6</td>
<td>75.4 ±9.7</td>
<td>1.5 ±10.4</td>
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</tr>
</tbody>
</table>

P107 Adherence to CPAP Treatment in Slovenia

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Background Good adherence to CPAP treatment in patients with obstructive sleep apnea (OSA) is crucial for achieving clinical benefits and can be determined from CPAP machines software. We aimed to assess adherence and factors related to adherence with CPAP treatment in Slovenian patients.

Methods We retrospectively analyzed medical records including machine software data from patients coming to our outpatient office for evaluation after 6 months of CPAP treatment from July to September 2014. Patients were divided in two groups: adherent (use of CPAP for at least 4 hours/night on more than 70% of days) and non-adherent group.

Results 106 patients were eligible for analysis, 22 (21%) of them were women, age 57±6 years, body mass index (BMI) 38±9, 76 (72%) used autoCPAP, 81 (77%) used nasal mask, mean CPAP usage was 5h14min±2h14min and 75 (71%) of patients used CPAP for at least 4h/night on at least 70% of nights. Adherent group had higher initial apnea-hypopnea index (AHI) (53±24 vs. 38±26, p=0.009), lower initial mean oxygen saturation (88±6% vs. 91±3%, p=0.001), higher BMI (39±9 vs. 35±8, p=0.04), less often had mask problems (19% vs. 54%, p=0.005), less often had problems with tolerating pressures (12% vs. 32%, p=0.013). In multivariate logistic regression adjusted for age, initial AHI, type of mask, type of CPAP machine (auto of fixed), initial BMI, only initial AHI predicted good adherence (OR 1.03, CI 1.004-1.049).

Conclusions In our cohort of patients, adherence to treatment with CPAP was fairly good. Adherent group had higher BMI, higher initial AHI, lower mean oxygen saturation, less mask and pressure tolerance problems. Only initial AHI predicted good adherence to CPAP treatment.

P108 Effect of concomitant asthma and obstructive sleep apnea on lung function in non-obese subjects

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In bronchial asthma (BA) associated with obstructive sleep apnea (OSA) changes in lung function are usually suggested to be related to obesity. The aim of the present study was to assess airway resistance and diffusion capacity for carbon monoxide (CO) in non-obese asthmatics with OSA. Methods. 54 BA patients (mean age 39.6±1.48) with Body-Mass Index (BMI) < 30 were enrolled in the study. OSA was assessed by overnight cardiorespiratory monitoring. Each patient underwent whole-body plethysmography and lung CO diffusion capacity measurement to determine airway resistance (Raw) and diffusion parameters (TLCO, KCO).

Results. Out of 54 asthmatics 15% who had OSA were distributed to Group I. Group II included patients without OSA. Mean BMI was 24.3±0.45 and did not differ significantly between the groups. KCO to Group I. Group II included patients without OSA. Mean BMI was 24.3±0.45 and did not differ significantly between the groups. KCO was found to be relatively increased in asthmatics with OSA (97 (88; 101) vs. 74 (67; 98), p=0.01). Expiratory, inspiratory and total Raw parameters (1.03, CI 1.004-1.049).

Conclusions Despite the fact we failed to demonstrate difference in airway resistance depending on the presence of OSA, we found diffusion of CO was significantly higher in OSA what may suggest its link with the degree of BA-associated changes in lung parenchyma. Another finding consisted in influence of airway resistance on overnight blood oxygenation. Persistently increased airway tone predisposed affected subjects to hypoxia, thereby promoting longer and more profound desaturation episodes.
P109 The Effect of Positive Airway Pressure Therapy on Serum Insulin-Like Growth Factor-1 and cognitive functions in patients with Obstructive Sleep Apnea Patients
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Due to hypoxia and sleep fragmentation hormone secretion, cognitive function may adversely affected in Obstructive Sleep Apnea Syndrome (OSAS). Cognitive impairment is common among OSAS patients. In this study, we aimed to investigate the effect of continues positive airway pressure (CPAP) therapy on serum insulin-like growth factor-1 (IGF-1) levels and cognitive functions in patients with OSAS. Thirty-three patients with newly diagnosed OSAS and 17 healthy-control subjects enrolled. Epworth Sleep Scale and mini-mental-state examination (MMSE) were performed to evaluate cognitive function in all cases after PSG. Blood samples were taken at the end of the PSG in the morning and the same procedures were repeated 3 months after starting CPAP treatment. Before CPAP therapy, OSAS group mean MMSE score was 23.5 ± 3.6, serum mean IGF-I level was 79.1 ± 36.1 ng/ml which both significantly reduced to control group (mean MMSE score= 28.1 ± 1.4, serum mean IGF-I level= 147.1 ± 49.1 ng/ml; p< 0.0001 and p< 0.0001, respectively). The three months after CPAP treatment, we found a significant improvement in MMSE and IGF-1 levels (MMSE score= 26.5 ± 2.8, serum mean IGF-I level= 129.1 ± 58.2; p= 0.0001 and p= 0.0001, respectively). Whereas, baseline and third month measurements for IGF-1 levels and MMSE scores were not significantly changed. The results showed that effective CPAP therapy in OSAS patients has significant improvement in cognitive functions and IGF-1 even in a short time therapy.

P110 Estimation of lung functions and assessment of risk of developing Obstructive sleep apnoea in wind instrument players
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Introduction: Obstructive sleep apnea is a condition characterized by flappiness of the upper airway. A few studies have shown decreased incidence of snoring and sleep apnoea in wind instrument players probably due to an increased tone of respiratory muscles. Aims and objectives: To perform the lung function tests in wind instrument players and to assess the risk of developing Obstructive sleep apnoea in them using the Berlin questionnaire. Methodology: The study was performed in 64 subjects in test group and 65 subjects in control group. Test subjects belonged to high risk group and control groups included subjects who did not play any form of wind instrument and singers were also excluded. Based on Berlin questionnaire subjects were divided into high or low risk. Lung functions were evaluated and statistical analysis was done using student t test and chi square test. Results: There was no difference in MVV values (P=0.63) between the tests and controls. More number of test group subjects belonged to the low risk group as compared to the controls (P=0.000) according to the Berlin scores. Pearson’s correlation showed no association between MVV and Berlin score (r = 0.062, P = 0.63). Conclusion: There is no association between improved lung functions and reduced risk of developing OSA. At the same time OSA risk is reduced in wind instrument players as a result of increased tone of upper airway muscles. Hence wind instrument playing may be considered as an option to reduce the risk or treat obstruction in sleep apnoea.

P111 Sleep apnea syndrome in Transylvania.
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Obstructive sleep apnea syndrome(OSAS) is a disease with a growing prevalence.
We present a study that took place from 01.2014 to 08.2014,in the Pneumology Clinic “Leon Daniello” Cluj–Napoca. Inclusion criteria were: loud snoring; excessive daytime sleepiness; recurrent nocturnal awakenings; most of them obese with short neck. Exclusion criteria were: inconsistent, abandonment study participation. 24 patients met the inclusion criteria, aged 19–81 years, most of the urban environment. Demographic, social, clinical data were collected. Polysomnography was done, patients with apnea hypopnea index(AHI) more than 5 represented the study group. Biological samples; chest radiography; functional respiratory specimens; cardiology consult; otorhinolaryngology consult were conducted. There were several methods of treatment: home 02.continuous positive airway pressure(CPAP),bi-level positive airway pressure(BiPAP),surgery in the otorhinolaryngology field. Of the 24 patients included,92%were men, the majority in the age group:40–60 years. Depending on body mass index,33% were morbidi obese. Regarding the Epworth scale,7 patients met a score over 18. Of the 24 patients,20 were diagnosed with OSAS,65% with severe form-AHI over 30. The biggest apnea index was 86, the minimum 02 saturation 44%. Depending on treatment,50% received CPAP therapy,12% in whom CPAP therapy was not effective used BiPAP; the remaining patients underwent surgery.8% of all refused treatment. Correct diagnosis, treatment of OSAS lowers the risk of morbidity, mortality.

P112 MicroRNA biomarker profiling for detection of favorable blood pressure responders to CPAP in patients with resistant hypertension and OSA: The HIPARCO-Score
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Background: In RH patients with OSA, CPAP leads to reduction in 24-h mean blood pressure (BP). The BP response to CPAP use is variable. MicroRNAs (miRNA) play a role in cardiovascular (CV) disease. We hypothesized that differential miRNA expression in RH patients with OSA being treated with CPAP may identify BP response. Aim: In OSA patients with RH undergoing CPAP treatment to identify miRNA candidate related to BP response. Methods: 41 male OSA patients with RH assessed before and after 3 months of CPAP treatment (4-5 hours/night). Response to CPAP was defined as BP changes ≥4 mmHg. 20 exhibited a reduction in mean BP (mean±SD,11.5±5 mmHg)(Responder Group (RG)) and in 21 patients, showed a change of ≥1.5±4.7 mmHg(Non-responder Group (NRG)). miRNAs expression profiling of CV system-focused miRNA was performed using custom array (Qiagen). A logistic regression model was fitted to identify the miRNAs that predict the BP response. Results: 3 miRNAs provided a discriminatory predictive model of RG and NRG. The AUC was 0.91, with 95% CI(0.82,0.99). The analysis of these 3 miRNAs enabled generation of a score for estimates of the probability for favorable BP response to CPAP treatment. Conclusions: A singular cluster of CV system functional miRNAs appears to specifically differentiate between OSA patients with RH whose BP favorably responds to CPAP and those who do not. The HIPARCO-Score is an easy to use and highly clinical practice predictive tool for the identification of favorable BP responders to CPAP among patients with RH and OSA.
Funding: FIS(P114/1266), SEPAR, ALLER.
P113 Assessing the prevalence of undiagnosed obstructive sleep apnoea (OSA) in an acute medical admissions unit in the UK

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Introduction: OSA is often undiagnosed with an impact on quality of life and morbidity. We present preliminary results of a prospective study to assess the prevalence of undiagnosed OSA on the acute medical take in a UK secondary care hospital.

Methods: We recruited medical patients 30 to 75 years of age admitted acutely for a variety of medical emergencies. If patients had two or more symptoms of sleep apnoea (snoring, witnessed apnoea, increased daytimes somnolence / tiredness and trouble concentrating), an Epworth Sleepiness score (ESS) was done.

Results: 93 patients (42 male & 51 female) were recruited. 45 (48%) had a BMI more than 30. 50 patients (54%) had significant co-morbidities; 19% were diabetic, 44% had hypertension and 5% known ischaemic heart disease. 51 patients (55%) had more than 2 symptoms and completed the ESS. In all 20 patients (39% of those with symptoms and 22% of all those studied) scored >11 on the ESS. The mean ESS in those with a score >11 was 14.8.

Discussion: Although a number of conditions can cause hypersomnolence, an ESS >11 with symptoms suggestive of upper airway obstruction has a high likelihood of OSA. OSA has a detrimental impact on underlying medical conditions. Risk factors such as hypertension and diabetes are routinely queried and treated when present. Our study suggests a high likelihood of OSA in patients admitted to hospital. We propose further studies to investigate those with symptoms and indeed screening questionnaires to estimate the true prevalence of OSA in this population presenting acutely to hospital as treating OSA has significant medical and health economic benefits.

P114 PROFILE OF PATIENTS WITH SLEEP DISTURBANCES: Day time sleepiness index

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Introduction: Sleep is a physiological state. It is a neurophysiological subject to alterations influenced by illnesses. In excessive day time sleepiness (EDS), the increase of the tendency of sleeping in inappropriate circumstances and places occur. Objective: To perform the epidemiologic survey of patients with sleep disturbances.

Method: Retrospective, exploratory, descriptive and quantitative research. Approved by the Research Ethics Committee, n°887289. The research was done at a sleep clinic, located at Vale do Paraíba/ Sao Paulo/Brazil. The data is composed by 421 patient’s assisted in the period of January/December 2013. Epworth Questionnaires of identification of the sample of sleepiness were utilized.

Results: Male predominant (56.77%), majority between 41 and 60 years (51.78%). The major complaints of sleep disturbances: (93.10%) related to snoring, (60.67%) apnea. Major symptoms (56.53%), low energy and (53.92%) diminished memory and focus. Referring to (EDS) (56.53%) present with excessive sleepiness, especially between the ages of 41 and 50 years old (58.04%) e males (60.25%). Polysomnography presents results related to apnea/hypopnea: 136 (32.30%) normal/65 (47.79%). Present with EDS: 108 (25.65%) severe/77 (71.30%) present (EDS); 99 (23.52%) slight/59 (59.60%) present with EDS; and 78 (18.53%) moderate/37 (47.44%) present with EDS. Of those that mentioned snoring (57.80%) and apnea (54.15%) present with EDS. There was a positive relationship between apnea/hypopnea and EDS (p-value 0.0008).

Conclusion: In conclusion there was a prevalence of EDS, especially between ages 41 and 60 years old and the males.

P115 Optimal time for a controlled titration study in patients with obstructive sleep apnea syndrome treated with non-invasive mechanical ventilation

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Introduction: The pressure requirements for patients with obstructive sleep apnea syndrome (OSAS) who use a positive airway pressure (PAP) device may change over time for various reasons. Aims and adjectives: In this study, we aimed to determined the optimal time for a controlled titration study and its associated factors in patients with OSAS using a PAP device.

Methods: We retrospectively identified 82 patients diagnosed with OSAS who used a PAP device and underwent a second PAP titration study for control purposes at our sleep center. We compared pressures and BMI (body mass index) values after both titration tests.

Results: The mean period between the first and second titration studies was 21.4 ± 17 (range, 3–74) months. The patients were divided into three groups according to the pressure changes following the controlled titration study: those with elevated, unchanged, and decreased PAP pressure. The BMI calculated following both studies increased significantly in the group with elevated pressure (p < 0.001), decreased significantly in the group with decreased pressure (p < 0.001), and no significant difference was observed in the group with unchanged pressure (p = 0.235). A positive correlation was found between the change in BMI and the change in Cpap, Iapap, and Epap values following both titration tests (r = 0.884; p<0.001, r = 0.898; p<0.001, r = 0.884; p<0.001, respectively).

Conclusions: The results show that weight changes in patients with OSAS receiving PAP therapy during follow-up can be accompanied by pressure changes in the device, suggesting the need for a controlled titration test.

P116 Sleep apnea and periodic leg movements in the first year after spinal cord injury

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Background: Sleep disturbances are frequently reported by patients with spinal cord injury (SCI). Studies have shown an increased incidence of sleep-disordered breathing (SDB) and periodic leg movements during sleep (PLMS) in people with stable long-term SCI. Methods: This was a prospective observational study in order to evaluate the features and possible predisposing factors of SDB and PLMS in a heterogenic population of consecutive SCI patients admitted at the Spinal Unit of the Niguarda Hospital within the first year after injury. Each patient underwent a clinical assessment, full polysomnography and arterial blood gas analysis before and immediately after sleep. Multiple logistic regressions were applied in order to evaluate factors associated with SDB and PLMS.

Results: Thirty-five (15 tetraplegic and 20 paraplegic) patients were enrolled. Nine patients (25.7%) had an obstructive SDB and 10 (28.6%) had PLMS. The frequency of SDB was higher in tetraplegic with respect to paraplegic patients (Wald statistic: 7.71; P = 0.0055),
whereas PLMs were significantly more frequent in patients with an incomplete motor lesion than in subjects with a complete motor lesion (Wald statistic: 6.14; P = 0.013).

Conclusion: This study confirms a high frequency of SDB and PLMS in SCI patients in the first year following injury. Independently from the possible sub-acute and chronic clinical variables, the level and the completeness of the spinal cord lesion are the main factors associated respectively with an early development of SDB and PLMS.

P117 Gender differences in a large sleep apnea population visiting a sleep clinic in Greece.

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Background: Obstructive sleep apnea syndrome (OSA) is underdiagnosed in women raising the concern that women manifest OSA differently. The aim of the present study was to characterise sex differences in an OSA population visiting a sleep clinic in Greece.

Methods: A total of 1842 subjects, 74.9% males and 25.1% females, aged 52±14 yrs were examined. Measurements of BMI, neck, waist and hip circumference, Epworth Sleepiness Scale (ESS), STOP BANG score and sleep study were obtained in all subjects.

Results: OSA was diagnosed in 81% of the sample, 13.5% having mild OSA (AHI 5-15/h), 18.8% having moderate OSA (AHI 15-30/h) and 48.5% having severe OSA (AHI>30/h). 29.5% of patients with mild OSA, 26.4% of patients with moderate and 20% with severe OSA were female. Women were older (age p<0.001) and heavier (BMI p<0.001) than men suffering from OSA with lower waist to hip ratio (p<0.001). More women suffered from diabetes (p<0.001), GERD (p<0.001) and hypothyroidism (p<0.001). Most men reported snoring (p=0.013) and apneas (p<0.001), whereas women complained for bad mood during the day, fatigue, headaches and nightmares (p<0.001). Men had higher AHI (p<0.001), oxygen desaturation index (ODI) (p<0.001), STOP BANG (p=0.005) and pack-years (p<0.001). Blood pressure and ESS did not differ significantly between males and females. Comparison of females with and without OSA revealed significant differences in anthropometric (age, BMI, waist to hip ratio), blood pressure, ESS, STOP BANG, AHI and ODI.

Conclusions: Females report the cardinal symptoms of OSA less frequently, they are older and heavier than men with OSA and have less severe syndrome.

P118 Lung Injury as Assessed by Krebs von den Lungen-6 Biomarker in Patients With Obstructive Sleep Apnea.

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Introduction: Obstructive sleep apnea (OSA) is characterized by upper airway obstruction along with varying degrees of gas exchange alteration causing oxidative stress, which contributes to endothelial dysfunction and cell injury in lung. The injurious effect of oxidative stress in the lungs of patients with OSA has not been fully elucidated. We hypothesized that lung injury biomarkers may have an association with OSA. We looked for correlation, if any, with serum Krebs von den Lunden-6 (KL-6) in Asian Indian OSA subjects.

Method: 200 subjects (132 male, 68 female) with suspected sleep disorders were recruited. After taking informed written consent, all subjects underwent overnight full- montage digital Polysomnography (Alice-5 sleep diagnostic system, USA). Serum KL-6 levels were evaluated by sandwich enzyme linked immune sorbent assay (ELISA). OSA was diagnosed if AHI was >5 per hour.

Results: 100 subjects (78 male, 22 female) were diagnosed with OSA and 100 subjects (54 male, 46 female) did not have OSA. Mean age & BMI was 55.0 year, 32.0 Kg/m2 in subject with OSA and 42.0 year 29.0 Kg/m2 in subjects without OSA (P value, 0.0019) respectively. Mean serum KL-6 levels was significantly elevated in subject with OSA 69.0 (26-322) ng/ml as compared to subjects without OSA 48.5 (6-266) ng/ml. Wilcoxon rank sum test p<0.0003.

Conclusion: Lung injury specific biomarker KL-6 is significantly elevated in OSA. These findings suggest that epithelial and endothelial cell injury in the lung may be present in the OSA. This may cause increased alveolar wall permeability in lung.

P119 CPAP treatment increases serum vitamin D levels in male obstructive sleep apnea patients

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Study Objective: Recent studies report a link between obstructive sleep apnea (OSA) syndrome, low vitamin D levels and high parathormone (PTH) concentrations. The aim of the present study is to evaluate the effect of seven-night continuous positive airway pressure (CPAP) therapy on serum vitamin D, PTH and calcium levels in patients with severe OSA syndrome.

Methods: We dosed serum vitamin D, PTH and calcium levels at baseline from control subjects and severe OSA patients (Apnea-Hypopnea Index ›30/h). Moreover, OSA patients subdivided in responders (OSA-R, mean residual AHI<5/h with a CPAP usage ≥4h/night) and not-responders (OSA-nR, mean residual AHI>5/h) underwent a final morning blood sample after seven- night CPAP therapy.

Results: We enrolled ninety OSA patients into the study (65 OSA-R and 25 OSA-nR) compared to 32 control subjects. At baseline we found lower vitamin D and higher PTH levels in OSA group compared to controls. After a seven-night CPAP therapy, male OSA-R patients showed a significant increase in vitamin D levels. Conversely, female OSA-R patients did not show the increase of vitamin D levels. Furthermore, OSA-nR subjects did not show modifications of serum markers after nCPAP-therapy.

Conclusions: The present study confirms that OSA patients suffer from low vitamin D and high PTH levels. However, the finding that short-term CPAP therapy is able to promote the recovery of vitamin D status in male but not in female OSA patients may be probably owing to the evidences that post-menopausal women are often affected by a sexual hormone-mediated impaired homeostasis of vitamin D.

Thematic Poster Session “Quality of life, Devices and Other Therapies”

P120 Sleep deprivation and its consequences on house officers and postgraduate trainees

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Objective: To determine sleep deprivation and its consequences on doctors in tertiary care hospitals.

Methods: The cross-sectional study was conducted from February to May 2012 and comprised house officers and postgraduate trainees at 4 public and 1 private tertiary care hospitals in Karachi. The subjects were posted in wards, out-patient departments and emergencies. A proforma was designed with questions about duration of duty hours, sleep deprivation and its effects on quality of performance, and presence of anxiety, depression, medical errors, frequent cold and infections, accidents, weight changes, and insomnia. Duration of 1 hour was given to fill the proforma. SPSS 20 was used for data analysis.

Result: The study comprised 364 subjects: 187 (51.37%) house officers and 177 (48.62%) postgraduate trainees. There were 274 (75.27%) females and 90 (24.72%) males. Of those who admitted to being sleep deprived (287; 78.84%), also complained of generalised...
weakness and poor performance (n=115; 40%), anxiety (n=110; 38%), frequent cold and infections (n=107; 37%), personality changes (n=93; 32%), depression (n=86; 30%), risk of accidents (n=68; 23.7%), medical errors (n=58; 20%) and insomnia (n=52; 18%).

Conclusion: Having to spend 80-90 hours per week in hospitals causes sleep deprivation and negative work performance among doctors. Also, there is anxiety, depression and risk of accidents in their personal lives.

P121 Sleep duration is increased but not physical activity in somnolent moderate to severe obstructive sleep apnea patients treated by continuous positive airway pressure.

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Obstructive Sleep Apnea syndrome (OSA) is associated with deteriorated sleep, decreased quality of life and low physical activity. With treatment, sleep quality is improved and we can expect, consecutively, a reduction in time spent sleeping. This study aims to assess the changes in sleep duration and quality in moderate to severe somnolent OSA patients before and after treatment by continuous positive airway pressure (CPAP). As secondary aims, changes in physical activity (PA) and quality of life (QoL) have been evaluated.

In this prospective multicentric study, patients were evaluated by 5-days actigraphy and QoL questionnaire before and 3 months after CPAP initiation.

150 obese and somnolent OSA patients were enrolled. Somnolence was improved with CPAP (Epworth sleepiness scale score decreased from 14.3±9.9 to 9.5±0.001). Time spent sleeping increased significantly under CPAP, from 358±106 to 387±89 min (p<0.001). QoL was severely impaired in all domains at baseline, and was improved after treatment.

PA did not change under CPAP. Low PA was correlated with OSA severity (p<0.02) and with nighttime oxygen desaturation (p<0.02). In this study, we have shown for the first time in a large series that sleep time is increased with CPAP treatment in moderate to severe somnolent OSA patients. Short sleep time seems to be associated with OSA severity. Hypothesis explaining this phenomenon could be a protective mechanism in OSA, avoiding hazards related to sleep state in this pathology, but underlying mechanisms need to be further studied.

P122 Pneumotning (oropharyngeal and pulmonary exercises, electrical stimulation and manual therapy) to improve the CPAP compliance in patients with Obstructive Sleep Apnea-Hypopnea. A pilot study.

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The most appropriate treatment for severe Obstructive Sleep Apnea-Hypopnea (OSAH) is the Continuous Positive Airway Pressure (CPAP). The problem is that 30% of patients do not use CPAP treatment. One of the intolerances is the high positive pressure of the CPAP. This means that there is a great collapsibility of the upper airway (UA). Aim: to increase the compliance of the CPAP by performing pneumotning therapy (PNT). PNT tries to improve the UA patency through: oropharyngeal musculature toning exercises, electrical stimulation, pulmonary exercises and manual therapy.

Methods: Patients (n=34) were randomized in two groups with opaque envelopes. The intervention group underwent CPAP and PNT, the control group only CPAP. We compare the final data with U MannWhitney for continuous variable and Chi-square for nominal variable. Baseline data of the groups were homogeneous in gender, age, body mass index, snoring, apnea-hypopnea index, cumulative percentage time at SaO2<90%, smoke habits, Epworth Scale, Sleep Apnea Quality of Life Index (SAQLI), Atenas insomnia test and CPAP pressure.

Results: There is a statistical difference in compliance (100% in intervention group vs 65% in the control, p=0.001), the improvement of SAQLI (p=0.05) and the subjective tolerance of CPAP measured with Visual Analogical Scale (p=0.02). Conclusion: PNT is worth being more studied because it could be an interesting adjunct treatment in severe OSAH to improve CPAP compliance.

P123 Influence of auto CPAP therapy on life quality in patients with BA combined with OSAHS

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Aim of study: to assess the efficacy of auto CPAP therapy on life quality in patients with BA combined with OSAHS. Materials and methods: 20 BA patients (FEV1(68.0 ± 3.3)% with OSAHS (AHI – (33.6 ± 5.6) diagnosed by polysomnography, 7 female and 13 male, mean age (56.7 ± 2.2) years with BMI (35.4 ± 2.2) kg/m2 were treated auto-CPAP therapy during 10 nights on the background of standard BA therapy. Patients were assessed with ACQ, Epworth Sleepiness Scale, body plethysmography (“Cardinal Health” (Germany)), 6-min walk test with BORG scale (physical tolerability), quality of life questionnaire (SGRO) at baseline and after studied course of treatment.

Results: after studied course symptoms component (frequency & severity) score decreased from (66.4 ± 3.0) to (49.0 ± 3.1), activities that cause or are limited by breathlessness - decreased from (44.0 ± 3.7) to (25.8 ± 4.1) and impact components (social functioning, psychological disturbances resulting from airways disease) – from (44.0 ± 3.7) to (22.9 ± 2.2). All domains changed significantly (p < 0.05) and according minimal clinically important difference – it was very efficacious treatment (±12, ERJ 2002 Mar, 19(3):398-404).

Conclusion: addition of auto CPAP therapy in patients with combined pathology – BA+SOAHS clinically meaning and statistically significant improve life quality.

P124 Influence of auto- CPAP therapy on polysomnography indices in patients with bronchial asthma and obstructive sleep apnea/ hypopnea syndrome

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Aim of study: to study the influence of auto-CPAP therapy on PSG indices in patients with asthma and OSAHS. Materials and methods: 20 BA patients (FEV1(68.0 ± 3.3)% with OSAHS (AHI – (33.6 ± 5.6)) diagnosed by PSG, 7 female and 13 male, mean age (56.7 ± 2.2) years were treated auto-CPAP therapy during 10 nights on the background of standard BA therapy. Patients were assessed with PSG (“SomoStar Pro”, “Cardinal Health” (Germany)), 6-min walk test with BORG scale (physical activity index) and QoL questionnaire (SGRO) at baseline, after 10 days observation, after 1-st night of auto-CPAP therapy and after studied course of treatment.

Results: at baseline all patients had abnormal PSG data: IAH (33.6 ± 3.7) /h and ID (47.3 ± 5.8) %; decreased REM stage (13.7 ± 3.5) %, mean SpO2 (87.9 ± 1.6) %, min SpO2 (72.8 ± 2.7) %. Deep sleep stages (3and4th) were also decreased. After first 10 days, when patients continued their basic therapy observation PSG sings didn’t change.

After 1-st night of treatment with auto CPAP therapy was noted decrease of IAH to (6.9 ± 2.5) /h and ID to (17.8 ± 4.2) % vs baseline; increased mean SpO2 to (91.4 ± 1.3) % and min SpO2 to (82.4 ± 2.3) (p < 0.05) compared vs baseline. After 10 nights of treatment by auto-CPAP therapy we found positive dynamics of PSG data, but they were not statistically significant vs first night of auto-CPAP therapy.

Conclusion: use of auto-CPAP therapy in addition to basic treatment in patients with combined pathology – BA and OSAHS increased AHI, index desaturation, mean and min SpO2 after the first night vs baseline.
P125 Effectiveness of Home Single-Channel Nasal Pressure for Sleep Apnea Diagnosis
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Introduction: Home single-channel nasal pressure (HNP) may be an alternative to polysomnography (PSG) for obstructive sleep apnea (OSA) diagnosis but no cost studies have yet been carried out. Automatic scoring is simpler but generally less effective than manual scoring.

Objectives: To determine the diagnostic efficacy and cost of both scorings (automatic and manual) compared with PSG

Methods: We included suspected OSA patients in a multicenter study. They were randomized to home and hospital protocols. We constructed Receiver Operating Characteristic (ROC) curves for both scorings. Diagnostic efficacy was explored for several HNP AHI cutoff points and costs were calculated for equally effective alternatives.

Results: Of 787 randomized patients, 752 underwent HNP. Manual scoring produced better ROC curves than automatic for AHIs. HNP with manual scoring seems to have better diagnostic accuracy and a lower cost than automatic scoring for patients with low AHI levels, although automatic scoring has similar diagnostic accuracy and cost than manual scoring for intermediate and high AHI levels. Therefore, automatic scoring can be appropriate used although diagnostic efficacy could improve if we carried out manual scoring on patients with AHI<15.

P126 Brain stimulation over the dorsolateral prefrontal cortex triggers sleep-dependent memory consolidation
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The beneficial role of sleep in declarative memory consolidation is widely accepted; the role of sleep in non-declarative memory consolidation, however, is debated. Here we aimed to explore how sleep contributes to non-declarative memory consolidation by a direct manipulation of the involvement of specific brain regions in memory formation. Healthy, young adults performed an implicit sequence learning task and simultaneously received anodal (excitatory) transcranial direct current stimulation (tDCS) to the right or left dorsolateral prefrontal cortex (DLPFC) (real stimulation groups) or sham stimulation (placebo group). Memory performance was tested 12 hours later. Half of each group had sleep between the two sessions (PM-AM design), the other half of each group had an awake period during the 12-hr delay (AM-PM design). Analysis of memory performance revealed an interaction between stimulation and sleep. Greater engagement of the left DLPFC led to better memory consolidation only if the delay period did not contain sleep, while greater engagement of the right DLPFC led to better memory consolidation only if the delay period contained sleep. These results highlight a functional hemispheric asymmetry of the DLPFCs in non-declarative memory consolidation; moreover, these processes are differentially affected by sleep. This cognition-sleep interaction has important implications not only for healthy populations, but also for sleep disorders. A better understanding of the effect of sleep on memory consolidation can help in designing more accurate diagnostic tools and more efficient rehabilitation programs in order to overcome memory deficits in sleep disorders.

P127 Inter-rater reliability in polygraphy scoring: quality control in a sleep support service
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Aims: To measure and maintain acceptable inter-rater reliability in scoring of sleep polygraphy studies.

Methods: The Sleep Support Service (previously known as MOST) offers scoring of polygraphy studies to clinical partners, using either partner’s ‘in-house’ or AASM [1] scoring criteria. Since Feb 2013, all internal MOST scorers and an external scorer (AC) score a monthly polygraphy for quality-control (QC) purposes, with scorers’ individual apnea-hypopnea index (AHI) expected to lie within +/- 15% of the group average AHI. Each monthly exercise is scored blind of others’ results using a) ‘in-house’ criteria (respiratory events associated with a 4% desaturation) and b) AASM criteria. QC is promoted and maintained through individual and team training and study review at meetings.

Results: Individual scorers’ and the group’s mean AHI are shown for (top) ‘in-house’ and (bottom) AASM scoring criteria.

Scorers’ AHI values over time and by scoring criteria

Inter-scorer AHI values lay within +/- 15% of the mean except when AHI<10. In-house and AASM criteria yielded, in some cases, substantially different AHIs.

Conclusions: QC promoted and maintained inter-rater reliability in polygraphy scoring within scorers and against an external scorer. Comparison of two separate scoring criteria systems shows sometimes large differences in outcome of AHI severity.


P128 Effect of Modafinil and Armodafinil on Excessive Daytime Sleepiness in Patients with Obstructive Sleep Apnea: A Systematic Review and Meta-analysis
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Background: Obstructive sleep apnea (OSA) is a condition marked by upper airway obstruction that is associated with nocturnal hypoxemia, excessive daytime sleepiness (EDS), and sympathetic hyperactivation. It is associated with impaired quality of life, and other cardiovascular diseases. Modafinil, and the R-enantiomer, armodafinil, are wakefulness promoting agents known to be effective in ameliorating sleepiness in patients with OSA.

Objective: To assess efficacy of modafinil and armodafinil on EDS in patients with OSA.

Methods: We performed a systematic review and meta-analysis

Effect of Modafinil and Armodafinil on EDS in Patients with OSA

Profitability of Modafinil and Armodafinil on EDS in Patients with OSA

Comparison of Modafinil and Armodafinil on EDS in Patients with OSA
of published randomized controlled trials (RCTs) that evaluated the efficacy of modafinil and armodafinil on EDS. Electronic databases, including PubMed, EMBASE, and Cochrane Central Register of Controlled Trials, were searched for articles on OSA published before November 2014.

Results: We identified 11 RCTs of modafinil involving 880 patients and 3 RCTs of armodafinil involving 900 patients. The meta-analysis showed significant improvement on Epworth Sleepiness Scale. The pooled mean difference of modafinil and armodafinil was −2.96 (95% confidence interval [CI]: −3.73 to −2.19) and −2.63 (95% CI: −3.4 to −1.85), respectively. The sleep latency of maintenance of wakefulness test also significantly prolonged under modafinil and armodafinil with pooled mean difference of 2.51 (95% CI 1.5-3.52) and 2.71 (0.04-5.37) separately.

Conclusion: Our review indicated that both modafinil and armodafinil significantly improved subjective and objective daytime sleepiness. These medications may be recommended to patients with OSA, especially those with EDS.

P129 A telephone questionnaire to assess self reported CPAP compliance in moderate to severe OSA patients. Usefulness and accuracy.
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Objective: To evaluate usefulness and accuracy of a telephone questionnaire to assess CPAP compliance in moderate to severe OSA.

Methods: Subjects with OSA diagnosis (AHI≥15) were identified from sleep laboratory records and were asked to answer a telephone questionnaire. Information recalled: CPAP prescription and acceptance, machine provider, clinical response and self reported CPAP compliance. In a subgroup of patients compliance was checked by hs/use from the machine.

Results. 220 OSA patients answered the questionnaire, 128(58%) women, mean age 58.6±10.5 years, AHI 43.4±23.5. CPAP prescribed in 172(78%), refusals 17(8.8%) and no CPAP access 22 (12.7%). Treatment conducted in 134 (61%) provided by Hospital 114(85%), 10(4.9%) abandoned treatment, 109(81%) at least one year of treatment, 132(98%) self reported compliance ≥4 hs use (6.6±0.6 nights/week, 6.65 ±1.54 hours/night) Changes in symptoms: less somnolence 125 (93%), more activity 129(96%), reduced snoring 123 (98%), 71(71.6%) followed up by sleep physician and respiratory technician. In 91 patients data on hs/use recorded by machine showed ≥4hs/night in 85% of patients.

Conclusions: A simple telephone questionnaire applied to CPAP patients shows optimal clinical response to treatment as well as relatively accurate information on compliance to therapy. It can be an alternative minimal follow up for patients not attending clinics.

P130 Are anxiety and depression predictive factors of CPAP treatment adherence in OSAS patients?
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CPAP is gold standard treatment for severe OSA patients but treatment adherence remains an issue for physicians. We have investigate if anxiety and depression are predictive factors of poor treatment adherence.

We calculate an anxiety feature and a depression score with Spielberger anxiety feature—state inventory (STAI form Y-B) and BDI scale for each OSAS patient who started a CPAP treatment in our center with systematic 6 months follow-up.

418 peoples have been included between January 2012 and October 2014. 100 (23%) had stopped treatment during this period. In the ongoing treatment group (318), 99 have been excluded of the study (31%): 74 (74,7%) haven’t yet realized 6 months follow-up, 3 (3%) refuse to participate and 22 (22,3%) haven’t correctly completed the questionnaires [fig 1].

Anxiety feature scale results isolate 5 groups: no anxiety (21), mild anxiety (77), moderate anxiety (73), high anxiety (36) and extreme anxiety (12). The 6 months mean adherence is respectively 6.3; 5.7; 5.5; 6.1 and 5 hours/night. Multiple linear regression analysis doesn’t found significant statistical difference between the groups (F=1.821203; p = 0.125824).

BDI scale results identified 69 patients with depression. They are classified in mild (45) and moderate to severe (24). The 6 months mean adherence is respectively 5.8 and 5,6 hours/night. In the group of patients without depression (150), the 6 months mean adherence is 5.7 hours per night. Multiple linear regression analysis doesn’t found significant statistical difference between the three groups (F= 0.114108 ; p = 0.892215) [fig 2].

Anxiety and depression are not predictive factors of poor adherence to CPAP treatment.

Study design

P131 Bench test comparing two automatic CPAP algorithms for treating obstructive sleep apnea
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Introduction: Automatic positive airway pressure (PAP) devices adjust the delivered pressure to the degree of airway patency in patients with obstructive sleep apnea (OSA), aiming to normalise patient’s breathing with the lowest possible pressure. Whereas some patients require significant PAP delivered in a short time, others may only require modest pressures.

Aim: To compare a recent mode “Response” implemented in ResMed AutoSet device to slow down pressure changes and to keep the overall average pressure lower than the standard mode in the same device.

Methods: Algorithms performance was assessed in the bench using a servo-controlled simulated OSA patient (Rigau J, Chest 2006). For a 4 h test we measured: normalisation of breathing, time to reach pressure which normalised breathing (TPNorm), mean PAP applied (Pmean), maximum PAP (Pmax) and residual obstructive events.

Results: Both modes were able to overcome obstructive events and flow limitation. TPNorm was similar for both modes (≈3.5 min).
P132 Comparison of polysomnography test results with demographic characteristics of the patients researched in terms of sleep breathing disorders, a retrospective study
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We retrospectively evaluated the polysomnography (PSG) results and the basic demographic characteristics of our cases. The records of 226 patients were analyzed retrospectively. Patients were divided into 3 groups according to their ages: young adults (age 18-44), middle aged (age 45-65), elderly aged (age ≥ 65). 210 of the patients were women and 205 were men with a general mean age of 38 ±12.6 (min: 16, max: 80). Sleep stages distribution of the cases was observed as 2.28% N1, 52.39% N2, 17.44% N3, 13.61% REM. 71 patients (31.4%) had not OSAS with apnea-hypopnoe index (AHI) values less than 5 (AHI < 5.0). These cases were evaluated as simple snoring. The remaining 155 patients (68.6%) with AHI ≥5 were diagnosed with OSAS. 60 cases (26.5%) were diagnosed with mild OSAS (AHI = 5-15), 44 (19.4%) with moderate OSAS (AHI = 15-30) and 51 (22.5%) with severe OSAS (AHI >30). The average age of patients was 36.47 in simple snoring group, 38.26 in mild OSAS group, 39.45 in moderate OSAS group and 38.29 in severe OSAS group. In terms of the AHI distribution by the age groups, the average AHI was 20.16 in young adults, 17.76 in middle-aged group and 24.37 in elderly group. There was no significant statistically different between groups (p>0.05).

P133 The role of FRI to predict treatment outcome after mandibular advancement in OSA patients
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Introduction: Previous work by our group showed that the severity of OSA correlates with the morphology of the patient’s upper airway (UA) lumen and skull. Treatment response is affected by gender, baseline OSA severity and UA shape and morphologic changes do correlate with changes in OSA severity. In spite of such correlations no single parameter was reported that is able to predict the outcome of a given treatment. This work aims to develop and test a binomial linear model to predict treatment response to mandibular advancement (MA) in a large population of OSA patients.

Material and Methods: 77 OSA patients were (83.2%; 47.4±11.5years; AHI=21.0±11.2) treated with MA (protrusion=75% of the maximal MA). The following data was used for the analysis:
- from PSG: OSA severity (AHI-ODI)
- from functional respiratory imaging: UA collapsibility (without or with MA), change in UA volume and resistance, movement of mandibular and hyoid bone

Treatment was considered positive if AHI ≤50%, or if post-MA AHI ≤5. A binomial generalized linear (bgl) model was made to predict response by aforementioned parameters. Fitted response values > 0.5 were considered to result in a positive response.

Results: The success rate in terms of AHI of the MA treatment was 47%. The fitted bgl model was significantly (p<0.05) predicting treatment outcome (positive predictive value=0.82; negative predictive value=0.81; accuracy=0.82; sensitivity=0.78; specificity=0.85).

Conclusion: A combination of OSA severity, gender, UA collapsibility, and the lumen and skeletal response to mandibular advancement can be used to predict the outcome of MA treatment with an accuracy above 80%.
P136 Effectiveness of classical VS vibratory positional therapy. A crossover pilot study
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Positional sleep apnea (POSA) is defined as obstructive sleep apnea whose apnea hypopnea index (AHI) is twice on their back then in other position. Over the years, several strategies have been tested in aiding avoidance of supine sleep with variable results. In positional therapy devices can be parted into two major classes. The first one includes tools which derive from the tennis ball’s technique. The other category includes the devices that vibrate when the patient is supine. The aim of our study is to compare these two types of devices in reducing AHI and the time spent in the supine position in POSA’s patients. Ten male patients (45,1±9,7 years) with body mass index (28,6±4,2 Kg/m2). Epoworth’s scale (ESS) 4± 2,9 points, diagnosed with POSA (ICSD-3 AASM) AHI 19,3±10, supine AHI 51,4±17,5 performed by portable home-based cardiorespiratory monitoring (CRM). Patients were given notice to employ both the vibrating device (Night Shift™) and a pillow that forces the lateral decubitus. After the one-week trial was carried out a CRM in which we register AHI, supine AHI, oxygen desaturation index (ODI), supine ODI, average oxygen saturation(Sao2), average minimum Sao2, Sao2madr, time spent below Sao2of 90%, time spent in supine position. The statistical analysis was conducted on with non parametric method (Wilcoxon test p<0,05). Vibration therapy has significantly reduced AHI and the time spent in supine position, besides all the other parameters are improved, except ESS and average Sao2. The classical treatment gave only an amelioration in Sao2parameters. Vibratory therapy can be an effective way of treatment in patients with POSA.

P137 Evaluation the risk and level of information about obstructive sleep apnea syndrome to drivers - a pilot study in Cluj-Napoca area, Romania
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Obstructive sleep apnea (OSA) is the most common medical disorder that causes excessive daytime sleepiness. Undiagnosed and untreated OSA increases the risk of road accidents by up to 7 times. We conducted an observational descriptive study using the Modified Stop Bang questionnaire for assessing the risk factors for OSA and to assess the level of knowledge and to test the opinion regarding OSA in 28 drivers. 88.22% were aged between 18 and 50 years, 73.79% were male. Half were normal weight, 40.22% were overweight, and obesity had 8.80% of I and II degree. Half of the respondents say that they have the neck circumference greater than 40 cm, more than two-fifths of them claim that they snore moderately, hard and very hard. More than half of the total of 98 subjects, who invoke moderate, hard and very hard felt sleepiness and fatigue during the day, have a high body mass index, are overweight or obese of I and II degree. Over a fifth of the respondents who say that their neck circumference is greater than 40 cm, confirmed the presence of daytime sleepiness and fatigue. Only 28.33% responders have knowledge about OSA. Only a share of 4.71% of the respondents say that they have been diagnosed with OSA, daytime sleepiness and need for knowledge and diagnosis for disease (p<0.01, p<0.001). The study reveals the need felt and expressed by the respondents on enhancing the medical education on the symptoms, the signs and the treatment of OSAS to reduce the number of car accidents that occur in the case of people with this condition.

P138 The prevalence of obstructive sleep apnea syndrome in coal miners and its relation with occupational accidents
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Introduction: Mining accidents continue to cause disabilities and deaths despite the advances in technology and preventive measures. Obstructive sleep apnea syndrome (OSAS) predisposes occupational accidents due to the tendency to sleep and impaired concentration. Aims and adjectives: The aim of the present study was to evaluate the prevalence of OSAS and its relation to occupational accidents in coal miners.
Methods: Among 2330 miners who worked in Zonguldak coal mines, 92 underground miners were included in the study, who sustained work-related occupational accident caused by the individual factors at least once in their working life. A survey was conducted using a questionnaire and face-to-face interview technique to assess OSAS symptoms and the number of work-related accidents. A total of 28 subjects, who were found to be at risk for OSAS and/or who sustained more than one occupational accident, underwent a polysomnography (PSG) test.
Results: According to the survey results, 62% of the cases snored, 29.3% had apnea, and 57.6% had excessive daytime sleepiness (EDS). Of 28 subjects, who underwent PSG, 24 scored ≥5 on the apnea hypopnea index (AHI). The prevalence of OSAS was found to be 27.3% in the study population. There was a significant correlation between AHI and the number of occupational accidents (r=0.69, p<0.001).
Conclusions: The present study showed the relationship between mining accidents and OSAS in coal miners who exhibit a higher prevalence of OSAS compared to general population.

P140 Anthropometric measures and snoring intensity in patients with obstructive apnea
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Introduction Due to the applicability and low cost, questionnaires and scores are valuable tools for diagnosis and screening of Obstructive Sleep Apnea (OSA) which is present in 9% to 24% of the general population.
Objectives To establish the relationship between the intensity of snoring and anthropometric measures with OSA severity according to AHI.
Methods Consecutive 63 adult patients, from both genders, at the Gaffrée and Guinle University Hospital at Rio de Janeiro, Brazil, submitted to a full night polysomnography and answered the Stanford subjective snoring classification (SSS), had their cervical (CC), abdominal (AC) and BMI measured.
Results The sample consists mostly of men aged 50 to 59 years (38%), 79% of the patients were diagnosed with OSA (36.1% mild OSA; 36.3% moderate OSA; 29.5% severe OSA). Of these, 88% were classified according to SSS as “high snoring”, “very intense snoring” or “the partner leaves the room”. 50% of the patients with mild snoring, were diagnosed with severe OSA, such as 27.3% of those who had the snoring classified as “the partner leaves the room”, were diagnosed with mild OSA. The patients with OSA presented altered anthropometric measures at physical exam especially the AC, above the cutoff in 68% of men (>94cm) and 81.8% of women (>80cm); and the BMI was altered in 85.8% (40.9% overweight; 31.8% obese class I; 13.6% obese class II). The CC >40cm, found in 55.5% was not enough to suggest the diagnosis of OSA, while the absence of snoring was a good predictor to exclude moderate and severe OSA, since 100% of this group was diagnosed with mild OSA.
ABSTRACTS

P141 Comparison of CPAP Treatment versus Surgery on Health Related Life Quality in Moderate OSAS Patients
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Obstructive sleep apnea syndrome (OSAS) is characterized by repetitive hypoxaemia and arousals leading to daytime excessive sleepiness. The main therapeutic approach for this syndrome is either continuous positive airway pressure (CPAP) treatment or surgery. The aim of this study was to compare the influence of these two treatment modalities on health related life quality (HRLQ). Symptomatic 50 male and 11 female patients aged between 18 and 73 years, with moderate OSAS according to polysomnographic findings were included in the study. 30 patients who used CPAP therapy regularly for three months and 31 patients who accepted nasal surgery were completed the study and filled questionnaires (Beck depression and SF-36 quality of life scales) at the beginning and at the end of the study. There were no difference according to polysomnographic findings, Beck depression score and short form Health Survey (SF-36) at the beginning of the study. After treatment Beck depression scale decreased significantly in both groups. On the other hand only vitality (power to live.), general health perceptions and pain decreased significantly in SF-36 in CPAP group. There was a significant improvement for Beck depression scale in both treatment modality, however in group receiving CPAP treatment was (p<0.001) significant when compared with surgery group (p=0.02).

Conclusions: OSAS is a disorder with impairment of sleep quality and architecture that causes decreased life quality and elevated depression rates. Both surgical and CPAP treatment significantly improves symptoms of depression while statistically higher improvement rates occur among CPAP group.

P142 The role of sleep in the consolidation of emotional stories
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The impact of sleep on declarative memory is well established but its role for the consolidation of emotional memories and the processing of emotions remains unclear. In this study, we investigated the influence of sleep, especially Rapid Eye Movement (REM) sleep, on the consolidation of emotional stories. After being slightly restricted of sleep, 24 participants learned a neutral or a sad story in the morning, and were then assigned to either a short (45 minutes) or a long nap (90 minutes). After the nap, they had to recall the story based on structured questions, while mood and emotional states were assessed via questionnaires (Self-Assessment Manikin, SAM) and skin conductance measurements (SCL). As expected, REM sleep was more abundant in the long (19.5 +/- 11 minutes) than in the short nap (2.8 +/- 6 minutes), p < .0001). Results failed to disclose nap-duration related differences for the recall of the sad and the neutral story. However, the performances in retrieval for the sad story were positively correlated with REM sleep density (r=0.64; p=.0496). For the sad story, mood improved (SAM, p=.002) and arousal increased (SAM, p=.05) after a long but not a short nap. Unexpectedly, SCL increased after a long nap for the sad story. These results are partially in agreement with the Sleep to Forget and
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THURSDAY 16 APRIL 2015

SDB – A SYSTEMIC DISEASE – CONSEQUENCES FOR DIAGNOSTIC AND TREATMENT CONCEPTS
ROOM J

Organised by Weinmann Geräte für Medizin GmbH + Co. KG
Chairs: J.L. Pepin (Grenoble, France), M. Bonsignore (Palermo, Italy)

17:30 OSAS – a systemic disease how to deal with?
J.L Pepin
17:50 OSA and gender: From pathophysiology to clinical picture and therapeutic implications
M. Bonsignore (Palermo, Italy)
18:10 Personalized medicine for SDB – interindividual differences in symptoms and adverse effects
E. Arnardóttir (Reykjavik, Iceland)
18:30 Sleep disordered breathing in different cardiovascular diseases – does it make a difference?
M. Arzt (Regensburg, Germany)
18:50 Hands-on session (Weinmann)

NEW OPTIONS IN SDB – DRIVING BETTER COMPLIANCE AND PATIENT CARE
ROOM F

Organised by ResMed
Chairs: A. Simonds (London, UK), H. Woehrle (Blaubeuren, Germany)

17:30 Introduction
17:35 The many faces of SDB – how well do we know our patients?
M. Morrell (London, UK)
17:55 Personalized medicine, where are we in OSA?
A. Wimms (London, UK)
18:15 Telemonitoring – Efficiency or Quality of Care?
H. Woehrle (Blaubeuren, Germany)
18:35 SDB in HF, preparing for new evidence
A. Simonds (London, UK)
18:55 Summary

FRIDAY 17 APRIL 2015

SEVERITY OF SLEEP DISORDERED BREATHING - IS AHI THE BEST INDICATOR?
ROOM J

Organised by Nox Medical
Chair: R. Skomro (Saskatoon, Canada)

13:45 Introduction
13:50 Is the very high prevalence of OSA in recent epidemiological studies a major public health issue or (at least partly) because of new technology and definitions?
T. Gislason (Reykjavik, Iceland)
14:15 Is respiratory effort the missing piece and how is it measured?
E. Arnardottir (Reykjavik, Iceland)
14:40 Summary
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