

THE 2016 RESPIRATORY HEALTH SUMMIT

A grayscale chest X-ray showing the ribcage and lungs. The lungs appear slightly hazy, possibly indicating a respiratory condition. The spine and heart shadow are visible in the center.

ABSTRACTS

24TH – 26TH MAY 2016
London, UK

EuroSciCon 

This international event will discuss the latest research related to the science of respiratory health (social, economic, health and environmental). In an informal academic setting this three-day event will bring together those working in all aspects of respiratory health and research. From infection and pathology to treatment and pharmacology; this summit will cover all aspects of respiratory health.

This event has [CPD accreditation](#)

This abstract book will be finalised two weeks before the event

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#Resp2016

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Invited Speakers Abstracts

Work Associated Irritable Larynx Syndrome

Dr. Jennifer Anderson, St. Michael's Hospital, Toronto, Canada

Work associated Irritable Larynx Syndrome (WILS) is a hyperkinetic laryngeal disorder associated with occupational irritant exposure. Clinical symptoms are variable and include dysphonia, cough, dyspnea and globus. Laryngeal centered upper airway symptoms secondary to airborne irritants is documented in the literature under a variety of diagnostic labels including WILS, vocal cord dysfunction (VCD), laryngeal hypersensitivity and laryngeal neuropathy and others. The underlying pathophysiology is poorly understood however the clinical scenario suggests a multifactorial etiology. More recent literature indicates that central neuronal plasticity, inflammatory processes, and psychological factors are all likely contributors

Treatment options for WILS include environmental, medical and behavioural therapy.

Novel mechanisms in airway smooth muscle affecting corticosteroid therapy in severe asthma

Dr. Yassine Amrani, University of Leicester, Leicester, United Kingdom

10% of asthma patients poorly respond to corticosteroid therapy which results in persistence of symptoms, intermittent attacks and increase risk of death. The purpose of the presentation is to update the current evidence describing the existence of corticosteroid resistant pathways in airway smooth muscle in asthma. Different molecular mechanisms will be discussed with a special emphasis on pathways affecting the function of corticosteroid receptor such as its phosphorylation on key serine residues and its ability to induce of anti-inflammatory proteins. Targeting these different pathways may therefore lead to novel potential therapeutic alternatives for the treatment of severe patients.

ECMO in refractory respiratory failure

Dr Lars Broman, Karolinska University Hospital

Extracorporeal membrane oxygenation (ECMO) is expanding in the adult population as last resort in refractory respiratory failure. May that be Venovenous, or Venovenovenous or Venovenovenovenous ECMO if required. Indications/contraindications, techniques, the complexity of transferring on-ECMO, and outcome are discussed.

Electronic Cigarettes and Quitting Smoking

Dr Jon O. Ebbert, M.D., Professor of Medicine, Mayo Clinic, Rochester, Minnesota, USA

The learning objects of this presentation are to: 1) Understand the mechanics of Ecigarettes; 2) Summarize the data regarding Ecigarette nicotine delivery; 3) Define the known health risks of Ecigarettes; 4) Identify how cigarette smokers use Ecigarettes; and 5) Cite evidence regarding the efficacy of Ecigarettes for smoking cessation.

Volatile organic compounds in exhaled breath from tobacco cigarette and electronic cigarette smokers: Comparison with the emitted smoke composition.

Professor Joan O. Grimalt, Institute of Environmental Assessment and Water Research (IDAEA), Barcelona, Spain

Male. Born in Palma (Mallorca). Research Professor of the Spanish Council for Scientific Research (CSIC). Director of the Institute of Environmental Assessment and Water Research (IDAEA) in Barcelona. Environmental organic geochemist. Scientific career devoted to the study of natural and anthropogenic organic compounds as markers of the health status of ecosystems and organisms (including humans). Publication of more than 600 scientific papers. Supervision of 44 PhD thesis. Scientist included in the list of Essential Science Indicators of the ISI Web of Science in the topic Environment/Ecology and Social Sciences. H index = 65.

The effect of cigarette smoke on the developing airway

Dr. Christina Pabelick, Mayo Clinic, Rochester, United States

Premature infants are at increased risk of developing bronchopulmonary dysplasia and future airway hyperreactivity (AHR) due to frequent exposure to mechanical ventilation and supplemental oxygen. Environmental tobacco smoke exposure may further exacerbate AHR. AHR involves increased intracellular Ca^{2+} ($[Ca^{2+}]_i$), increased contractility, and airway smooth muscle (ASM) hyperplasia. Data from our lab and others has shown that plasma membrane invaginations, termed caveolae, play an important role in ASM through interference with $[Ca^{2+}]_i$ regulation leading to increased contractility and proliferation. These effects are further enhanced in the presence of cigarette smoke.

Combination pharmacological treatment for smoking cessation and weight gain prevention

Dr Ryan Hurt, Mayo Clinic College of Medicine, USA

Some individuals smoke with the perception that smoking helps control body weight. Smokers gain an average of as much as 10 pounds in the months following smoking abstinence, with heavier and more-dependent smokers gaining more weight. Mean weight gain may be as much as 6 kilograms at 1 year and 10 kilograms over 5 years. Actual weight gain following smoking abstinence has been commonly associated with smoking relapse. The current talk will review the use of pharmacologic agents to address weight concerns in smokers.

Does fear of lung disease motivate smokers to quit

Dr John Nichols, University of Surrey, UK

Researchers have shown that the imminence of a health threat is the most important factor in a smoking cessation motivator. Spirometry with an explanation of lung age can improve quit rate. In our research, we have used a lung cancer risk score which is based on a combination of a genetic test (11 single nucleotide polymorphisms and a deletion mutation) and clinical criteria (history of COPD, family history of lung cancer and age) from which a lifetime risk of lung cancer can be estimated. This was only an effective motivator if lifetime risk was 50% or more.

Acute-on-Chronic disease: The role of Cigarette Smoke-induced COPD for Acute Lung Injury

Dr. Peter L. Radermacher, University of Ulm, Ulm, Germany

The clinical course and outcome of trauma patients with multiple injuries is significantly influenced by the coincidence of blunt chest trauma and consecutive lung contusion, which results in acute lung injury (ALI) with intrabronchial and intraalveolar bleeding, pulmonary capillary leakage with subsequent interstitial edema, and an enhanced systemic inflammatory response. Chronic obstructive pulmonary disease (COPD) is characterized by hypoxemia, chronic pulmonary and systemic hyper-inflammation, and both oxidative and nitrosative stress. Cigarette smoke consumption is the most important cause of COPD, but scarce data are only available on the impact of cigarette smoke-induced COPD on the course of trauma-induced ALI. This talk will summarize the available epidemiological, clinical and experimental data on the impact of COPD on ALI, the mechanisms involved, as well as possible therapeutic approaches.

Targeting neutrophilic inflammation in pneumonia

Dr. Ricardo Jorge Paixao Jose, University College London, London, United Kingdom

Pneumonia is associated with an exaggerated neutrophilic inflammatory response that may lead to lung injury, increased morbidity and mortality despite current therapies. Currently novel therapeutic strategies are required to attenuate the inflammatory response without compromising host defence. This presentation will detail new evidence for the role of thrombin-PAR1 signalling in mediating neutrophilic inflammation in pneumonia. Additionally, it will present data on neutrophil chemokine receptor switching in community-acquired pneumonia.

Smoking cessation in Lung cancer patient, is it worth it?

Miss Rachel Roberts, Portfolio Research Coordinator, Hywel Dda University Health Board, Clinical Research Centre, Prince Philip Hospital, Llanelli

Despite advances in radiology and chemotherapy, the 5-year survival for Lung Cancer (LC) remains at under 10%. Studies suggest that continued smoking after a diagnosis of LC independently worsens quality of life and shortens life expectancy but these are small, retrospective studies where smoking was self-reported and only at baseline.

We have conducted a UK multicentre trial (NCT01192256) where we followed patients with newly diagnosed LC for up to 12 months. Self-reported smoking status was verified by serial exhaled carbon monoxide levels. All were offered smoking cessation and standard treatments according to best practice. Results have shown that smoking cessation affects survival, complication rate and impacts quality of life. This is the first prospective study to show people who quit smoking within 3 months of LC diagnosis have increased survival compared to those who continue to smoke. Findings to date indicate that stopping smoking is associated with significantly better prognosis in patients newly diagnosed with LC.

Cigarette smoking and risks of acute respiratory distress syndrome

Dr. Murali Shyamsundar, Queen's University, Belfast, Belfast, United Kingdom

Tobacco smoking has been shown to be associated with an increased risk of developing acute respiratory distress syndrome.

This talk will present the current evidence on smoking associated ARDS secondary to various aetiologies. Results from a recently published trial investigating the mechanism for this increased risk using an inhaled lipopolysaccharide model in healthy volunteers will be presented. This talk will finish with the presentation of an ongoing research project exploring the effects of e-cigarette on pulmonary inflammation and epithelial-endothelial barrier function.

A new combined MTB complex and MTB Rifampicin / Isoniazid resistance detection test

Dr Ning Tang, Ph.D, Abbott Molecular Inc., Des Plaines, IL, USA

Tuberculosis (TB) specifically drug-resistant TB poses a serious threat to public health. Rapid and reliable diagnosis is crucial for correct management of tuberculosis. The Abbott RealTime MTB assay represents new real-time PCR assay for direct detection of *M. tuberculosis*-complex (MTB) DNA from respiratory samples. The MTB test can be followed by a reflex test for detection of MTB resistance to Rifampicin and Isoniazid use the same sample preparation eluent. The basic performance characteristics for MTB killing process, MTB complex detection and the reflex MTB resistance test will be described and evaluated in this presentation.

The 2014 US Nationwide Outbreak of Severe Respiratory Illness Associated with Enterovirus D68

Dr. Guiqing Wang, New York Medical College, Valhalla, United States

A nationwide outbreak of severe respiratory illness associated with enterovirus D68 (EV-D68) infection, with more than 1,000 confirmed cases and several death, was reported in the United States in 2014. The epidemiology, clinical features, diagnosis and control strategies of EV-D68 infections will be reviewed. Also, whole-genome sequencing data on a new clade of EV-D68 causing this outbreak and its pathogenicity, molecular characteristics and clinical implications will be presented.

P2Y receptors and airway inflammation

Professor KO Wing Hung, The Chinese University of Hong Kong, Hong Kong, China

Autocrine or paracrine release of nucleotides is now recognized as an important biological and physiological process that may contribute to airway inflammation. Nucleotides released during the airway inflammatory processes (e.g. ATP, UDP) will activate cell membrane P2Y receptors, which will lead to further release of inflammatory cytokines. The secretion of cytokines and formation of such "cytokine networks" play important roles in prolonging airway inflammatory disease. This novel mechanism may represent an important cellular signalling pathway for regulating asthmatic inflammation in airway cells, and suggests that the P2Y receptor could be a therapeutic target for the development of anti-inflammatory strategies.

Novel Portable Nebulisation Platform for Next Generation Inhaled Macromolecular Therapeutics

Professor Leslie Yeo, RMIT University, Melbourne, Australia

We demonstrate a portable nebulisation platform for pulmonary drug, gene and stem cell delivery, particularly that of a DNA vaccine against influenza. The technology is also a rapid, efficient and straightforward means for synthesizing 100 nm biodegradable polymeric particles within which therapeutic molecules such as nucleic acids, proteins and peptides can be encapsulated. The low cost, particle size control, low power requirement, delivery efficiency, and miniaturisability makes the platform an attractive alternative to current nebulisers and inhalers, which we envisage could comprise the next-generation of devices that will revolutionise pulmonary drug and gene delivery for needle-free therapy.

Day 1:

Oral Presentation Abstracts

Oral presentations will be added after the submission deadline

Day 2:

Oral Presentation Abstracts

Day 3:

Oral Presentation Abstracts

Poster Presentation Abstracts

Poster abstracts will be finalised weeks before the event

KNOWLEDGE AND ATTITUDE OF AUSTRIAN GENERAL PRACTITIONERS ABOUT/TOWARDS E-CIGARETTES

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Background: Sales of e-cigarettes (EC) have increased exponentially in recent years with e-cigarettes often being marketed as a less harmful alternative to tobacco cigarettes. There is an ongoing debate about the potential advantages of uses as well as negative health effects of EC. The outcome of these discussions could have a significant impact e.g. on smoking cessation programs. Aim of this study is to investigate the knowledge of Austrian general practitioners towards e-cigarettes and to identify current practice regarding the use of EC.

Methods: A structured questionnaire consisting of 49 items was administered by experienced interviewers. Information was collected on the demographics of the participants and knowledge on the component materials and harmfulness of a variety of nicotine products. Furthermore, ratings of EC as a smoking cessation device are included.

Results: Data from 237 doctors (135 male, 105 female) were analysed (average age 49.8 years). 73.4% of participants rated their knowledge of e-cigarettes as “poor” or “very poor”. E-cigarettes were recommended for smoking cessation by 7.2% of doctors; more often recommended were nicotine inhalers (20.3%), nicotine patches (59.9%) or medicines supporting smoking cessation (30.8%). 72.1% of participants considered Conventional nicotine replacement therapy were considered a suitable tool for smoking cessation by 72.1% of the participants, 30.9% thought e-cigarettes are suitable. Nearly three quarters of participants did not feel sufficiently informed to discuss the topic with patients.

Discussion: In light of the increasing use of EC in Austria, it is pertinent to note that general practitioners do not feel sufficiently informed to accurately answer patients’ queries. Although several participants considered EC an effective tool for smoking cessation only few participants recommended their use. This discrepancy could highlight a lack of knowledge, and represent the uncertainty and contradictory research which currently exists on the topic. These findings demonstrate the need for further education of Austrian GPs on this topic. Considering the increasing demand for EC, evidence based recommendations on the toxicological aspects and addictive properties of EC are very important.

CROSS-SECTIONAL STUDY ON NUCLEAR ANOMALIES IN BUCCAL CELLS OF E-CIGARETTE-USER IN AUSTRIA - FIRST RESULTS

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Background: An increasing trend towards e-cigarettes (EC) has instigated a discussion on this new form of nicotine consumption. Existing research allows only limited recommendations for public health measures as there is no long-term evidence on adverse effects and addictiveness. The aim of this study is to investigate genotoxic and cytotoxic effects of EC vapor on human buccal mucosa cells and the user behaviour of participants. In this article we describe the findings of a questionnaire conducted to explore these parameters.

Methods: Data was collected on the current health of participants and current and previous use of nicotine products. The Penn State Cigarette/Electronic - cigarette Dependence Indices were utilized to establish addiction levels of participants. The questionnaires were administered by trained interviewers. Mouth swabs were taken from 34 EC users and 36 tobacco smokers in order to establish the toxicological effects. 37 non-smokers were recruited as a control group. The buccal smears will be analysed for genotoxic and cytotoxic effects via Buccal Micronucleus Cytome-Assay (BMCA).

Results: The average age of participants was 39.5±6.3 years. Cigarette smokers consumed on average 25.4±12.4 cigarettes per day with an average nicotine content of 0.7±0.2 mg. EC users had been using their EC for an average of 16.6±13 months. With an average consumption of 11.0±6.1 ml of E-liquid per day. Around 63% of EC users identified themselves as heavy users. Before switching to EC, users smoked an average of 29.0±14.6 cigarettes per day and about 88% reported feeling healthier since switching. Evaluation of the Penn State Dependence Index demonstrated an average of “low dependence” (8.13±2.86) for e-cigarette users and “medium dependence” (10.50±3.13) for cigarette smokers.

Discussion: In line with several international studies most participants reported feeling healthier following a switch to EC. The participants used high-performance EC and had an above average EC consumption, which correlates with an elevated addiction profile. Nevertheless the addiction profile of EC users was lower than within the smokers group. These findings will, in combination with the BMCA, help to establish if a long-term use of EC has significant health effects.

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