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Highlights from this issue

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The Triumvirate

FAT HAPPY WHEEZERS

The term “fat happy wheezer” was formerly used to describe plump, pre-school children who had an episode of wheezing but who generally did well. The term has fallen into disuse – most parents don’t like the term “fat”. On page 1091 of this issue Maja Popovic, and colleagues examine the relationship between infant size, weight velocity and tempo (age at peak weight velocity) and wheezing between 6 months and 18 years of age. They find that infant size and weight velocity are related to the risk of wheezing but that tempo is not. More work is needed to explore the mechanism by which faster growth and larger size might produce a “fat happy wheezer”.

VAPING MICE

Rodents are discouraged in most health facilities though they are probably ubiquitous. However, unlike some of our patients, they don’t stand at the hospital entrance smoking or vaping – perhaps they vape in secret. The consequences of vaping in mice include features reminiscent of COPD according to Garcia-Arcos and colleagues (*see page 1119*). These effects include: distal airspace enlargement, mucin production, together with cytokine and protease expression. These effects were not seen with nicotine-free e-cigarettes. So will e-cigarettes be a less effective harm reduction strategy than previously thought? This is discussed in the accompanying editorial on page 1080 and will surely add fuel to the lively debate on the role of e-cigarettes in the smoking cessation community!

ACUTE RESPIRATORY DISTRESS SYNDROME – SMOKERS WATCH OUT...

Cigarette smoke is associated with an increased risk of ARDS. Moazed and colleagues investigated the pathways of lung injury in smokers and non-smokers with, and without, inflammation induced by lipopolysaccharide (LPS) inhalation (*see page 1130*). After LPS inhalation, cigarette smokers had increased alveolar-capillary membrane permeability compared with non-smokers. Smokers also had exaggerated inflammation. Alveolar epithelial injury after LPS was more severe in smokers. Cigarette smoke exposure may predispose to ARDS through as a 2-hit phenomenon. Another reason definitely not to smoke...

SCREENING FOR ILD – YOU NEED TO PUT YOUR HEART INTO IT

Bernstein and colleagues investigated the relationship between rheumatoid arthritis

(RA)-associated antibodies and subclinical ILD (*see page 1082*). The investigators measured interstitial lung abnormalities (ILAs) in 2907 full-lung CTs in 6736 cardiac CT scans as part of the Multi-Ethnic Study of Atherosclerosis. Indeed, RA-related autoimmunity was shown to be associated with both quantitative and qualitative subclinical ILD phenotypes on CT and these data should be used to drive novel approaches to screening in ILD.

ASTHMA – AVOID HEAT AND HIGH HUMIDITY AS WELL AS COLD AND LOW HUMIDITY

The association between weather conditions and asthma hospitalisation is debatable. Ching-yu Lam and colleagues investigated the relationship between asthma hospitalisation and weather conditions in Hong Kong (*see page 1097*). In the hot season, hospitalisations were lowest at 27° but rose to a peak at 30°C. In the cold season, temperature was negatively associated with asthma hospitalisations. Asthmatics should avoid exposure to adverse weather conditions and, in particular, avoid heat and high humidity as well as cold and low humidity.

BRONCHIECTASIS SEVERITY INDEX TO PREDICT OUTCOME (TO BE HONEST, IT IS A BIT TWO-FACED)

Bronchiectasis has substantial associated morbidity and mortality. McDonnell and colleagues investigated the clinical predictive value of the BSI and the FACED score in seven European cohorts independent of their original validation studies (*see page 1110*). Both scores had discriminatory predictive value for mortality with greater sensitivity but lower specificity compared with the FACED score. The FACED score overestimated mortality had had a poor discrimination for hospital admissions and was unable to predict exacerbation risk, quality of life, lung function decline and exercise capacity. In contrast, BSI was a useful predictive tool across all these domains.

PULMONARY CAPILLARY APOPTOSIS AND COPD

Circulating microparticles released from endothelial cells, due to apoptosis, are raised in smokers with normal spirometry, but low diffusion capacity as early evidence of lung destruction in COPD. Strulovici-Barel and colleagues investigated whether pulmonary capillary apoptosis persisted with the development of COPD and assessed its reversibility in smokers with and without COPD

following smoking cessation (*see page 1137*). Indeed, compared with non-smokers, both smokers with and without COPD had elevated levels of circulating microparticles due to active pulmonary capillary endothelial apoptosis. Of major clinical relevance, the authors have shown that pulmonary capillary apoptosis is reversible in smokers without COPD who quit, but this process continues in smokers who progressed to airflow obstruction, despite smoking cessation.

TISSUE OXYGEN LEVEL COULD BE THE NEW TARGET FOR TB

It is unknown if hypoxia is a causal factor for tissue destruction in human TB. Belton and colleagues investigated tissue hypoxia in patients with PET imaging as well as the regulation of matrix metalloproteinases secretion in primary human cell culture systems in normoxic and hypoxic conditions (*see page 1145*, Editors’ choice). In addition to demonstrating, for the first time, severe tissue hypoxia in man, the authors have demonstrated heterogeneous levels of hypoxia within and between patients. Finally, *Mycobacterium tuberculosis* was shown to drive hypoxia-inducible factor (HIF)-1 α accumulation, which enhances collagenase activity leading to lung destruction and cavitation. Most relevant is that blocking HIF-1 α inhibited gene expression and secretion of matrix metalloproteinases, which could potentially lead the way to a novel target to prevent tissue destruction.

STATE OF THE ART REVIEW: PULMONARY FIBROSIS IN THE ERA OF STRATIFIED MEDICINE

On page 1154, Dr Susan Mathai and colleagues provide an insightful review that focusses on the genetics of pulmonary fibrosis and highlighting potential area for future research....

TRIAL PROTOCOLS REVIEWED BY THORAX AND PUBLISHED IN BMJ OPEN RESPIRATORY RESEARCH

This month we highlight the SPUTNIK trial protocol that has been published in *BORR*. This study will determine the accuracy and cost-effectiveness of CT in the characterisation of solitary pulmonary nodules. <http://bmjopenrespres.bmj.com/content/3/1/e000156> Follow the link to read the open access protocol by Qureshi and colleagues and see *Thorax* instruction for authors for more details of submitting trial protocols <http://thorax.bmj.com/site/about/guidelines.xhtml#RCT>