Hot topics from the Assemblies

Efficiency of anti-inflammatory or antibiotic treatment in patients with non-complicated acute bronchitis and discoloured sputum.
Authors: Llor C, Moragas A, Bayona C, *et al.*
BMJ 2013; 10.1136/bmj.f5762
Summary: Acute bronchitis is prevalent and is a common reason for visits to primary care. It is predominantly caused by viruses and reflects an inflammatory response in the bronchi to infection. Despite this, most patients presenting to primary care receive antibiotic treatment. 416 participants aged 18–70 years with symptoms suggestive of a lower respiratory tract infection without pre-existing underlying pulmonary disease were randomised to receive ibuprofen 600 mg t.d.s., amoxicillin–clavulanic acid 625 mg t.d.s. or placebo t.d.s. for 10 days. Neither amoxicillin–clavulanic acid nor ibuprofen was associated with increased likelihood of cough resolution compared with placebo at 12 days (hazard ratio 1.03, 95% confidence interval 0.78 to 1.35 and 1.20, 0.93 to1.61, respectively). There was no statistical significance in the difference in days with frequent cough between antibiotic, ibuprofen and placebo arms (log rank test 0.25). There were however, a statistically significant number of adverse events from patients taking amoxicillin-clavulanic acid (12%) compared to ibuprofen (5%) and placebo (3%), P=0.008.
Discussion: There is no evidence to suggest from this study that in non-complicated acute bronchitis, treatment with ibuprofen or amoxicillin-clavulanic acid has any benefit in shortening duration of cough symptoms. This has implications for antibiotic prescribing in primary care and further research with alternative treatment options may be appropriate.
Reviewed by: Amelia Cutts (UK, Assembly 1)

ERCC1 function in nuclear excision and interstrand crosslink repair pathways is mediated exclusively by the ERCC1-202 isoform
Authors: Friboulet L, Postel-Vinay S, Sourisseau T, *et al.*
Cell Cycle 2013; doi: 10.4161/cc.26309
Summary: ERCC1 expression was long discussed for predicting response of platinum-based chemotherapy for non-small cell lung cancer (NSCLC) patients. This study analysed all four isoforms expressed from the ERCC1 gene of which only one shows activity in DNA repair pathways by binding and stabilising XPF. Those two proteins are mandatory for function of several DNA repairing processes (e.g. nucleotide excision repair pathway, Fanconi anaemia pathway of interstrand crosslink repair (ICL-R) and homology-directed repair), those that repair DNA–platinum adducts and attenuate the toxic effect of platinum-based chemotherapy in NSCLC patients.
The group created an ERCC1-deficient cell line to study the function of each isoform separately. The cell line showed a phenotype with mitotic defects resulting in anaphase bridges and multinucleation. The transformation of each isoform into this cell line assessed its potential to complete ERCC1 loss. By proximity ligation assay and immunofluorescence, the interaction of XPF was shown to be possible only with isoform 202 but not with the other ERCC1 isoforms and XPF was shown to be unstable without binding to isoform 202. Only ERCC1 isoform 202 could reverse the effects of ERCC1-loss and could protect from mitomycin C toxicity in the ERCC1 deficient cell line. No dominant-negative effects of the isoforms were found.
The usual analysis of ERCC1 expression by immunohistochemistry or real-time PCR could not distinguish between the different isoforms. A detection method of only ERCC1 isoform 202 has the potential to predict the response to platinum-based chemotherapy for NSCLC patients and therefore allows a more reliable pre-selection of NSCLC patients for therapy.
Reviewed by: Rica Zinsky (Germany, Assembly 3)

GOLD classifications and mortality in chronic obstructive pulmonary disease: the HUNT study, Norway.
Authors: Leivseth L, Brumpton BM, Lund Nilsen TI, *et al.*
Thorax 2013; doi: 10.1136/thoraxjnl-2013-203270
Summary: According to the GOLD guidelines, COPD is diagnosed if FEV1/FVC is below 0.70 on post-bronchodilator spirometry. Disease severity is assessed using FEV1 % predicted (GOLD grades 1–4). In 2011, a new method of classifying disease severity was launched. The four spirometric categories were reduced to two and assessment of symptoms severity and exacerbation frequency were added, forming the ABCD groups. The present study compared the spirometric GOLD grades and ABCD groups as predictors of mortality.
1,540 subjects included in the Norwegian HUNT-study with post-bronchodilator FEV1/FVC <0.70 were sampled in the 1990s and followed for 14.6 years (median). Disease severity was classified using both the spirometric GOLD grades 1–4 and ABCD groups. During follow-up, 837 (54%) of the subjects had died. Mortality increased gradually with higher spirometric GOLD grades 1–4. In contrast, mortality in the ABCD groups was similar in group A compared with B, and in group C compared with D.
In this study, the spirometric GOLD grades predicted mortality better than the new ABCD groups. Although including symptoms and history of exacerbations when assessing disease severity makes clinical sense, this implies that future revisions of the GOLD guidelines should place more emphasis on spirometric grading.
Reviewed by: Stig Hagstad (Sweden, Assembly 6)

Normothermic perfusion of donor lungs for preservation and assessment with the Organ Care System lung before bilateral lung transplantation: a pilot study of 12 patients
Authors: Warnecke G, Moradiellos J, Tudorache I, *et al.*
Lancet 2012; DOI: 10.1016/S0140-6736(12)61344-0
Summary: Ex vivo lung perfusion (EVLP) provides a tool to assess lungs harvested from non-heart-beating donors, or to recondition lungs grafts initially deemed unsuitable for lung transplantation. This study reports the first in-man use of normothermic perfusion and ventilation for preservation, assessment and transport

of donor lungs with the OCS lung device. Twelve patients underwent bilateral lung transplantation between February and July 2011 in two centres. Only one donor was a Maastricht category 1 donor; all other donors were brain-dead heart-beating donors. The mean running time on OCS was 303 mins; no graft was lost due to the preservation device. The PaO2/FiO2 ratio measured on the OCS lung was 471 at the end of preservation. The pulmonary vascular resistances and the peak airway pressure decreased during preservation and transport. There was no primary graft dysfunction grade 3; all patients were still alive at 30 days. Published evidence on EVLP has demonstrated a beneficial effect of normothermic perfusion and ventilation to improve lung grafts that would otherwise have been denied for lung transplantation. Newer technologies have enabled reduction in the size of ventilation and perfusion circuits to a portable device that can be brought to the graft to start physiological perfusion and ventilation immediately after the harvest. This study gives an insight into all the improvements that still can be brought to lung preservation. Ischaemia reperfusion injury and primary graft dysfunction are closely linked and remain one of the major pitfalls in the practice of clinical lung transplantation. Physiological perfusion could be equally useful to recondition unsuitable lung grafts but also to better preserve lung grafts thus reducing the impact of ischaemia reperfusion injury. The old rules of lung preservation and lung graft selection might rapidly be completely reset.
Reviewed by: Anne Olland and Gilbert Massard (France, Assembly 8)

Treatment of early-stage lung cancer detected by screening: surgery or stereotactic ablative radiotherapy?
Authors: Suresh Senan, Marinus A Paul, Frank J Lagerwaard
Lancet Oncol 2013; DOI: 10.1016/S1470-2045(12)70592-2
Summary: There is growing evidence of survival benefit with lung cancer screening using low-dose CT instead of chest radiography. However nodule management and treatment of early-stage lung cancer detected by screening is still a matter of debate. This article addresses the pros and cons of surgery versus stereotactic ablative radiotherapy (SABR) in the treatment of screen-detected early-stage NSCLC. The authors showed the benefits of surgery, the possibility of definite diagnosis and accurate nodal staging, which provides useful information for adjuvant therapy. However, surgical treatment has higher morbidity and mortality compared with SABR and risk of undesirable overtreatment of benign disease. Alternatively, SABR is highlighted as being particularly advantageous in patients less fit for surgery, providing high local disease control rates, no decrease in lung function and quality of life, despite its organ toxicity and post-treatment fibrosis masking local disease recurrence. The authors conclude that guideline-specified surgical resection seems to be the preferred treatment in fit patients, whereas in patients who are at high risk for surgical complications, information about clinical results and merits of SARS must be provided. Final decision should arise from multidisciplinary evaluation of each case scenario.
Reviewed by: Ines Neves and Gonzalez Fernandes (Portugal, Assembly 11)

Video- assisted Thoracoscopic surgery lobectomy versus open lobectomy in patients with clinical stage I non-small cell lung cancer: a meta-analysis
Authors: Chen FF, Zhang D, Wang YL, *et al.*
Eur J Surg Oncol 2013; DOI: 10.1016/j.ejso.2013.06.016
This meta-analysis included 20 studies with 3457 clinical stage I NSCLC comparing video-assisted thoracoscopic surgical lobectomy (VATS) to open lobectomy. The results of this meta-analysis showed that intra-operative blood loss was lower, drainage time and hospital stay were shorter and complication rate was lower in the VATS group. No statistical difference for operation time was found between the two groups. There was no statistical difference in the incidence of prolonged air leak, atrial fibrillation, myocardial infarction and chylothorax between the two groups. However, the pneumonia incidence in the VATS group was lower than in the thoracotomy group. Five-year survival rate was higher in the VATS group than in the thoracotomy group.
In stage I NSCLC, VATS achieves better surgical and oncological outcomes in comparison to thoracotomy and thus its application is strongly encouraged. It results in improved patient outcome and decreases patient burden.
Reviewed by: Ionela Bold and Anne- Pascale Meert (Belgium, Assembly 11)

Hot topic articles are short (approx. 200 word) summaries of recent important articles in respiratory medicine written by Junior ERS members (aged 35 years and under). To become a hot topic author please contact James Chalmers: email: jchalmers@dundee.ac.uk