Improving the investigation of suspected respiratory disease

**P178 THE EFFECT OF BAL INDUCED INFLAMMATION ON NASAL INNATE DÉFENCE — REDUCTION IN EXPERIMENTAL HUMAN PNEUMOCOCCAL CARRIAGE**

doi:10.1136/thoraxjnl-2011-201054c.180

1A D Wright, 2F J F Gritzfeld, 3S El Batrawy, 4L Roche, 5A Collins, 6S B Gordon. 1Comprehensive Local Research Network, Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, UK; 2Respiratory Infection Group, Liverpool School of Tropical Medicine, Liverpool, UK; 3WHR Biomedical Research Centre, Directorate of Infection and Immunity, Royal Liverpool and Broadgreen University Hospitals NHS Trust, Liverpool, UK; 4Royal Liverpool Hospital, Cheshire and Merseyside Comprehensive Local Research Network, Liverpool, UK

**Introduction and Objectives** BAL causes pulmonary inflammation post procedure. It is not known if the inflammation affects the upper respiratory tract and nasal mucosa. We have developed an experimental human pneumococcal carriage (EHPC) platform. We wished to establish if prior bronchoscopy was associated with altered carriage rates in EHPC.

**Methods** Participants were screened for natural carriage of pneumococcus by nasal wash. **Group A** then proceeded to inoculation 7 days after initial screening whereas **Group B** underwent bronchoscopy with BAL prior to inoculation. Bronchoscopy with BAL was performed using fibre optic bronchoscope and instillation of 200 ml 0.9% saline in 50 ml aliquots followed by immediate manual aspiration via the working port of the bronchoscope. Participants were inoculated with 6B or 23F S pneumoniae (15000—60000 CFU/ml) within 14 days of bronchoscopy. Carriage was determined by the presence of pneumococci in nasal wash samples at 48 hr and/or 7 days post inoculation.

**Results** Thirty-seven participants were recruited, of which 19 proceeded to BAL prior to inoculation; 22 were inoculated with 6B and 15 with 23F. Baseline characteristics were not significantly different between Group A and B. Neither group had any symptoms at the time of inoculation. Both Group A and B were subdivided into 23F or those that received 6B. The inoculum dose was not significantly different between the BAL groups for either 23F or 6B. The mean length of time between bronchoscopy and inoculation was 10 days (±1). Carriage rates between Group A 6B and Group B 6B were significantly different (p<0.008); this difference was not seen between Group A 23F and Group B 23F. In adults challenged with SPN, carriage rates differ by type. In an experiment with high carriage rates, there was a significant decrease in carriage rates in subjects with preceding BAL.

**Conclusions** This study suggests that the inflammatory process caused by bronchoscopy with BAL, as highlighted in previous research, may influence innate mucosal defence. The inflammatory effect of bronchoscopy with BAL should be accounted for in future research allowing adequate time before performing interventions which may be affected.

**P179 THE CHANGING NUMBERS AND INDICATIONS OF MEDIASTINOSCOPY PROCEDURES PERFORMED FOLLOWING THE INTRODUCTION OF ENDOBRONCHIAL ULTRASOUND AT A UK TERTIARY CENTRE**

doi:10.1136/thoraxjnl-2011-201054c.179

1M Bahir, 2R Breen, 3A Quinn, 4J King, 5G Santis, 6Guy’s & St Thomas’ NHS Foundation Trust, London, Great Britain; 2Guy’s & St Thomas’ NHS Foundation Trust, London, Great Britain

**Introduction** Endobronchial Ultrasound (EBUS) is a minimally invasive procedure that is being increasingly utilised in the diagnosis and management of mediastinal pathologies as an alternative to surgical mediastinoscopy. This study aimed to determine the extent to which EBUS is changing the numbers of and indications for surgical mediastinoscopy at Guy’s & St Thomas’ NHS Foundation Trust, a tertiary centre for EBUS and surgical mediastinoscopy.

**Methods** Patient records were retrospectively reviewed for two twelve-month periods, the first immediately preceding the introduction of EBUS (Phase 1), and the second commencing after a period of 15 months had elapsed (Phase 2). The numbers and indications of invasive mediastinal sampling procedures performed during each phase were determined and compared, as was the frequency of lymph node stations sampled.

**Results** 596 patients were included; the number of patients undergoing mediastinoscopy fell from 158 in Phase 1 to 106 in Phase 2; 352 patients underwent EBUS in Phase 2. There was a significant reduction in mediastinoscopies performed to stage lung cancer (64% reduction, p<0.001), confirm suspected lung cancer (40% reduction, p<0.001); and diagnose granulomatous disease (60% reduction, p<0.001); however, there was a 47% increase (p<0.001) in medias- tinoscopies performed to diagnose mediastinal lymphadenopathy unrelated to lung cancer. In Phase 2, EBUS accounted for 81% of lung cancer staging procedures, 85% of procedures confirming suspected lung cancer, and 84% confirming granulomatous disease. Nodal stations 4R/L and 7 were most frequently sampled by both procedures, while access to stations 10R/L and 11R/L by EBUS accounted for 20% of all stations sampled in Phase 2.

**Conclusion** The introduction of EBUS has reduced the use of surgical mediastinoscopy, but also increased the total number of mediastinal sampling procedures performed. Mediastinoscopy use has significantly fallen for all indications that are amenable to EBUS-directed sampling.

**P180 ELECTROMAGNETIC NAVIGATION BRONCHOSCOPY AS A DIAGNOSTIC METHOD IN RESPIRATORY MEDICINE: EARLY CLINICAL EXPERIENCES**

doi:10.1136/thoraxjnl-2011-201054c.180

1Kings College London, London, Great Britain; 2Guy’s & St Thomas’ NHS Foundation Trust, London, Great Britain

**Introduction and Objectives** Electromagnetic navigation bronchoscopy (ENB) is approved for use as an adjunct to conventional bronchoscopy, aiding the diagnosis of peripheral lung lesions. It is a modern technique which improves bronchoscopic yield, thereby potentially preventing unnecessary operations or high-risk procedures. Our objective was to assess the use of this technique in regular clinical practice, and to identify factors which may influence its success.

**Methods** A retrospective data analysis of all ENB procedures carried out in a 120-bed speciality respiratory hospital in Solingen, Germany, between 2007 and 2011 revealed a total of 43 procedures. In each case, size and anatomical location of the tumour based on CT findings were noted. A positive result was documented if a significant reduction in mediastinoscopies performed to stage lung cancer (64% reduction, p<0.001), confirm suspected lung cancer (40% reduction, p<0.001); and diagnose granulomatous disease (60% reduction, p<0.001); however, there was a 47% increase (p<0.001) in medias- tinoscopies performed to diagnose mediastinal lymphadenopathy unrelated to lung cancer. In Phase 2, EBUS accounted for 81% of lung cancer staging procedures, 85% of procedures confirming suspected lung cancer, and 84% confirming granulomatous disease. Nodal stations 4R/L and 7 were most frequently sampled by both procedures, while access to stations 10R/L and 11R/L by EBUS accounted for 20% of all stations sampled in Phase 2.

**Conclusion** The introduction of EBUS has reduced the use of surgical mediastinoscopy, but also increased the total number of mediastinal sampling procedures performed. Mediastinoscopy use has significantly fallen for all indications that are amenable to EBUS-directed sampling.

**Results** Thirty-seven participants were recruited, of which 19 proceeded to BAL prior to inoculation; 22 were inoculated with 6B and 15 with 23F. Baseline characteristics were not significantly different between Group A and B. Neither group had any symptoms at the time of inoculation. Both Group A and B were subdivided into 23F or those that received 6B. The inoculum dose was not significantly different between the BAL groups for either 23F or 6B. The mean length of time between bronchoscopy and inoculation was 10 days (±1). Carriage rates between Group A 6B and Group B 6B were significantly different (p<0.008); this difference was not seen between Group A 23F and Group B 23F. In adults challenged with SPN, carriage rates differ by type. In an experiment with high carriage rates, there was a significant decrease in carriage rates in subjects with preceding BAL.

**Conclusions** This study suggests that the inflammatory process caused by bronchoscopy with BAL, as highlighted in previous research, may influence innate mucosal defence. The inflammatory effect of bronchoscopy with BAL should be accounted for in future research allowing adequate time before performing interventions which may be affected.

**P180 ELECTROMAGNETIC NAVIGATION BRONCHOSCOPY AS A DIAGNOSTIC METHOD IN RESPIRATORY MEDICINE: EARLY CLINICAL EXPERIENCES**

S George, 1C Priegnitz, N Anduleit, W Randerath. Krankenhaus Bethanien, Solingen, Germany

**Introduction and Objectives** Electromagnetic navigation bronchoscopy (ENB) is approved for use as an adjunct to conventional bronchoscopy, aiding the diagnosis of peripheral lung lesions. It is a modern technique which improves bronchoscopic yield, thereby potentially preventing unnecessary operations or high-risk procedures. Our objective was to assess the use of this technique in regular clinical practice, and to identify factors which may influence its success.

**Methods** A retrospective data analysis of all ENB procedures carried out in a 120-bed speciality respiratory hospital in Solingen, Germany, between 2007 and 2011 revealed a total of 43 procedures. In each case, size and anatomical location of the tumour based on CT findings were noted. A positive result was documented if as a result of the procedure a clinical diagnosis could be reached.

**Results** ENB reached a clinical diagnosis in 15 of 45 patients (34.9%); eight malignant tumours, seven benign lesions, 28 left unclear. Of these 28, further investigations revealed a malignant process in nine
P179 The changing numbers and indications of mediastinoscopy procedures performed following the introduction of endobronchial ultrasound at a UK tertiary centre

M Bahir, R Breen, A Quinn, J King and G Santis

*Thorax* 2011 66: A140
doi: 10.1136/thoraxjnl-2011-201054c.179

Updated information and services can be found at:
http://thorax.bmj.com/content/66/Suppl_4/A140.2

These include:

**Email alerting service**
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Errata**
An erratum has been published regarding this article. Please see next page or:
http://content/67/2/178.5.full.pdf

**Topic Collections**
Articles on similar topics can be found in the following collections
- Cardiothoracic surgery (676)
- Lung cancer (oncology) (670)
- Lung cancer (respiratory medicine) (670)
- Lung neoplasms (608)
- Radiology (diagnostics) (812)

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/
However, a potential important confounding factor may explain a part of their results: undiagnosed pulmonary embolism (PE), mimicking (or induced by) COPD exacerbation. Troponin and BNP are factors associated with poor prognosis in PE.1 COPD is associated with an increased risk of deep venous thrombosis and PE (particularly during exacerbation) and with an increased risk of fatal PE.2 In particular, COPD is associated with increased risk of death from undiagnosed PE.3

The real incidence of PE during exacerbation of COPD is not clearly known, ranging from 1.5% to 24.7%,2 corresponding to the incidence of elevated troponin and BNP, as noted by Chang et al in their cohort. Therefore, it would be of great interest if Chang et al could provide us some precise answers:

- In how many of the 250 patients a PE has been evoked and/or eliminated?
- How many patients were under efficient anticoagulant drugs at inclusion?
- How many patients received thromboprophylaxis, as a significant number of patients included presented other PE risk factors such as malignancy or cerebrovascular diseases?

Because of reserved prognosis of COPD patients with PE, and of the availability of preventive and curative specific drugs, COPD patients admitted with exacerbation and with abnormal cardiac biomarkers may require a PE screening and effective thromboprophylaxis if PE has been ruled out.

Laurent Bertoletti,1,2,3 Patrick Mismetti,1,2,3 Hervé Decousus1,2,3

1 Université Jean-Monnet, Thrombosis Research Group, St-Etienne, France; 2 INSERM, U139, St-Etienne, France; 3 Centre Hospitalier Universitaire, Service de Médecine Interne et Thérapeutique, St-Etienne, France

Correspondence to Dr. Laurent Bertoletti, Centre Hospitalier Universitaire, Service de Médecine Interne et Thérapeutique, CHU St-Etienne, Saint-Etienne 42023, France; laurent.bertoletti@gmail.com

Competing interests None.

Contributors LB, PM and HD analysed the data and drafted the manuscript.

Provenance and peer review Not commissioned; internally peer reviewed.

Accepted 26 May 2011
Published Online First 18 June 2011


doi:10.1136/thoraxjnl-2011-200416

REFERENCES


Authors’ response

We thank Bertoletti and colleagues for raising the important issue of pulmonary embolism (PE) in the exacerbation of chronic obstructive pulmonary disease (COPD).1 Although we did not routinely investigate for PE in our cohort, we excluded any patients with suspected or confirmed PE from the study. Unfortunately, it is difficult to detect thromboembolic events in this population and it is possible that we included some patients with subclinical pulmonary emboli. It is also plausible that this contributed to the association between elevated cardiac biomarkers and mortality. However, we think that this is unlikely to be the only mechanism.

Thromboprophylaxis was administered to some patients during their admission depending on their immobility and other risk factors, but this would not have influenced the NT-proBNP or troponin T results obtained on presentation. We did not collect information on pre-existing anticoagulation therapy on admission to the study.

Further research into the mechanism linking elevated cardiac biomarkers and mortality in COPD exacerbation is needed. We agree with Bertoletti and colleagues that investigating the contribution of concurrent PE is important, as this is something that can be treated.

C L Chang,1 R J Hancox2

1 Department of Respiratory Medicine, Waikato Hospital, Hamilton, New Zealand; 2 Department of Preventive and Social Medicine, University of Otago, Dunedin, New Zealand

Correspondence to Dr C L Chang, Department of Respiratory Medicine, Waikato Hospital, Level 01, Menzies Building, Waikato Hospital, Hamilton 3204, New Zealand; contact_cat@hotmail.com

Competing interests None.

Provenance and peer review Not commissioned; internally peer reviewed.

Accepted 25 May 2011
Published Online First 18 June 2011


doi:10.1136/thoraxjnl-2011-200512

REFERENCES


CORRECTIONS

doi:10.1136/thoraxjnl-2011-201054c.151corr1

Thorax 2011;66:A128–A129 doi:10.1136/thoraxjnl-2011-201054c.151. P151 Cost of pulmonary rehabilitation is offset by reduction in healthcare utilisation. The author list and author affiliations for this poster should read: 1 S Kibe, 1 D Ford, 2 S Hart. 1 Scarborough General Hospital, Scarborough, UK; 2 Castle Hill Hospital, Hull, UK.

doi:10.1136/thoraxjnl-2011-201054c.183corr1


doi:10.1136/thoraxjnl-2011-201054c.233corr1

Thorax 2011;66:A162–A163 doi:10.1136/thoraxjnl-2011-201054c.233. P233 Judicious use of oximetry can help deliver cost effective sleep service. The author list and affiliation for this poster should read: C L Collins, B Balakrishnan, J Madieros, M Sovani. Queen’s Medical Centre, Nottingham University Hospitals, Nottingham, UK.

doi:10.1136/thoraxjnl-2011-201054c.179corr1

Thorax 2011;66:A140 doi:10.1136/thoraxjnl-2011-201054c.179. P179 The changing numbers and indications of mediastinoscopy procedures performed following the introduction of endobronchial ultrasound at a UK tertiary centre. The author list and affiliations for this poster should read: 1 M Bakir, 1 R Breen, 1 A Quinn, 1 J King, 1 G Santis. 1 Kings College London, London, UK; 2 Guy’s and St Thomas’ NHS Foundation Trust, London, UK.