P3700
Role of medical thoracoscopy in a developing country: A single unit experience from Sri Lanka
Dushantha Madagedara, Neranjan Dissanayake, Duminda Yasaratne, Chandana Kulathunga, Samadara Nakandala, Prasanne Wijerathne, Chathura Wirasinghe. Respiratory Disease Treatment Unit, Teaching Hospital, Kandy, Sri Lanka

Introduction: Medical thoracoscopy (MT) is proven as an effective tool in managing pleural disease, but is scarcely available in resource poor environments.

Objective: To describe the utility and safety of MT in managing exudative pleural effusions in the local setting.

Method: We retrospectively analyzed 96 MTs performed during past year in our unit.

Results: 8 MTs failed due to non-collapsible lung (6) and poor patient compliance (2). Of the 88 where visualisation of pleural cavity was possible, 51 had septic fibro-purulent exudate and 20 had non-purulent exudate. Haemorrhagic effusion was seen in 15, while 2 had food particles in the cavity.

Conclusion: MT is a safe and effective diagnostic tool in our establishment. Therapeutic use of MT was not done. Pleural biopsy was done where relevant, while 47 underwent adhesiolysis. MT served as a safe and effective diagnostic tool in our establishment. Therapeutic use should be enhanced to include MT based pleurodesis.

P3701
Thoracoscopic palliative treatment of malignant pleural effusions
Costica Mitrofan1, Cristina-Elena Mitrofan2, Dragos Barzu1, Mugurel Bosanceanu1, Lucian Furmatu1, Denis Truta1, Cristina Grigorescu1. 1Clinic of Thoracic Surgery, University and Pharmacy “Gr.T.Popa”, Iasi, Romania; 2Clinic of Pneumology, University and Pharmacy “Gr.T.Popa”, Iasi, Romania

The aim of this study was to analyze the results of pleurodesis for malignant pleural effusion.

Methods: We performed retrospective study on 743 thorascopies for malignant effusions done in our clinic in the period January 2001 and December 2010. There were 336 males (45.2%) and 407 females (54.8%), ranging in age from 18 to 81 years (mean age: 59.4 years). The effusion was on the right side in 379 patients (51%), on the left side in 308 (41.5%), and bilateral in 56 (7.5%). Straw colored effusions were present in 423 cases (57%) and hemorrhagic in 320 cases (43%). The surgical procedure consist in diagnostic of thoracoscopy with drainage of pleural effusion, multiple pleural biopsy, pleurodesis and continuous pleural drainage. In our study, the talc powder (5g) was successfully as sclerosing agent.

Results: There was no intraoperative mortality. The primary tumor was: lung-248 (33.4%), breast-218 (29.4%), mesothelioma-126 (17%), stomach-18, ovarian-24, prostate-9, colon-15, lymphoma-12, leukemia-9, plasmocytoma-4 and unknown primary tumor in 60 cases (8%). Adverse effects included chest pain-252 cases (34%), fever-135 cases (18%), empyema-27cases, prolonged air leak -24 cases, pulmonary infection-6 cases, acute respiratory failure-5 case, malignant invasion of the intercostal nerve-1 case. Duration of postoperative pleural drainage ranged between 2 and 10 days (mean: 3.23 days). The postoperative hospital stay ranged from 2 to 21 days (mean: 3.4 days). The results were very good in 654 patients (88%), acceptable in 71 patients (9.6%), and there was a failure in 18 patients (2.4%) after 1 month-follow-up.

Conclusion: Thoracoscopic talc pleurodesis is a safe, economical and effective treatment for malignant pleural effusion.

P3702
Classification of findings during medical thoracoscopy: Do they correlate with pathology?
Philippos Emmanuel1, Rodoula Tringidou2, Dimitris Chiotis1, Magda Stratikis1, Konstantina Kontogian1, Nikolaos Koufos1, Sofia Gennimata1, Spyros Zakynthinos1, Manos Alchanatis1, Gregoris Stratikis1. 1Dept of Pulmonary Medicine Department of Athens University, “Sotiria” Hospital, Athens, Greece; 2Department of Pathology, “Sotiria” Hospital, Athens, Greece; 3Pulmonary and Critical Care Department of Athens University, “Sotiria” Hospital, Athens, Greece

Medical thoracoscopy although not always conclusive, has been established as the last step in the diagnostic approach of pleural pleurodesis. We aimed to assess its diagnostic value and classify endoscopic findings in correlation with histology diagnosis.

During the last 5 years, 69 patients (55 males) aged 66±14 (mean±SD) underwent medical thoracoscopy in our unit for an undiagnosed exudative pleural effusion following extensive workup. Pleural biopsy revealed malignant pleural mesothelioma (MPM) of various subtypes in 16 (23.2%), non small cell lung cancer (NSCLC) in 9 (13%), extrathoracic malignancy in 3, pleural tuberculosis in 2, paramalignant effusion in 2, angiosarcoma in 2 and Non-Hodgkin lymphoma in 1 patient. In 33 cases (47.8%) biopsy revealed chronic inflammation or “non specific pleurisy”.

Endoscopic classifications were classified as: pleural thickening, bulging, nodules, adhesions, diffuse infiltration, pleural masses, plaques, hemorrhagic appearance, visceral pleura invasion, pulmonary atelectasis. No significant correlations were found between endoscopic and pathology findings. However, parietal pleural mass had a trend of positive correlation with NSCLC (kappa=0.415, p=0.001) and a trend of inverse correlation with non specific pleurisy (kappa = 0.35, p=0.001).

Cytologic thoracoscopy enabled specific diagnoses in more than 50% of prior un-diagnosed cases in which all other means had been exhausted. High incidence of MPM in our patients is worth noting. The rest (47.8%) of the cases with non specific pleurisy were amenable for biopsy.

P3703
Use of indwelling pleural catheters for management of recurrent chylothoraces secondary to benign superior vena cava syndrome: A case report
Fahad Al-Ghimlas, Saleh Alazemi. Medicine, Amiri Hospital, Safat, Kuwait

We describe a unique case of intravascular (Hickman catheter-induced chylothoraces. They were treated with conservative measures and bilateral indwelling pleural catheters (PleurX®) insertion. The uniqueness of this case is that chylothoraces re-appeared after re-institution of the patient diet, despite removal of the Port-
A Cath. The chylothorax was shown on the subsequent chest roentgenograms on either side or both sides at different times. By reviewing the literature, PleurX® has a limited use in the case of chylothorax. This case strengthens the indication for using this relatively less invasive therapeutic approach, especially in patients who fails conservative treatment and not found to be good surgical candidates. In addition, we recommend using bilateral catheters if clinically indicated, as was demonstrated in our case. Furthermore, this case reports that chylothorax in the same patient after therapeutic addition, we recommend using bilateral catheters if clinically indicated, as was demonstrated in our case.

P3704 Impact of a new bedside thoracic ultrasound service in a large district general hospital: A service evaluation Helen Stanworth1, Tarek Saba1, 2, 3, Matthew Evison1, Graham Hoadley1, Helen Robinson1, 4, 5, 6, 15th Year Medical Student, University of Liverpool, Liverpool, United Kingdom; 2Respiratory Medicine, Blackpool Victoria Hospital, Blackpool, United Kingdom; 3Radiology, Blackpool Victoria Hospital, Blackpool, United Kingdom; 4General Practice, Blackpool Victoria Hospital, Blackpool, United Kingdom; 5Radiology, Blackpool Victoria Hospital, Blackpool, United Kingdom

Background: In 2008, the UK National Patient Safety Agency (NPSA) issued an alert recommending the use of thoracic ultrasound to aid chest drain insertion (NPSA/2008/RR0003). Our institution is a large district general hospital in North-West England, serving a local population of approximately 330,000 people and a further 12 million holidaymakers who visit the area each year. In 2009, a Physician-Led Ultrasound Service (PL-US) was launched, in addition to the existing Radiology-Led Ultrasound Service (RL-US).

Aims: To investigate the demand for PL-US and the impact on workload and training.

Methods: We audited the number of procedures performed by physicians and radiologists from May–July 2008, 2009 and 2010.

Results: The total number of procedures increased from 24 (all RL-US) in 2008 to 66 (29 RL-US and 32 PL-US). The proportion of RL-US procedures requested by respiratory medicine fell from 46% (11/24) in 2008 to 17% (4/24) in 2009 and 14% (4/29) in 2010, with the remaining RL-US procedures requested by other specialties. In addition, in 2010 a total of 24 thoracic ultrasounds were performed on respiratory patients, 20 of these 24 were performed by the PL-US, with only the remaining 4 by the RL-US.

Conclusions: Overall demand for thoracic ultrasound has risen by 275% since the UK NPSA alert in 2008. Since introduction of the PL-US, the total number of chest medicine referrals to the RL-US has fallen by 64%. In addition, 83% of radiologists in our institution are now performing physicians. Importantly, training opportunities for radiologists have not diminished as a result of this service.

P3705 Impact of teaching and awareness programme on doctors' knowledge of chest drain insertion site

Mithun Murthy, Joanna Gallagher, Nicola Stevenson. Respiratory Medicine, Wirral University Teaching Hospitals, Wirral, Wirral, United Kingdom

Aim: To assess if doctors identify correct site for chest drain insertion. To assess impact of teaching programme on their knowledge.

Methods: In 2008, 111 doctors were asked to identify correct drain insertion site for uncomplicated pneumothorax by marking photographs. Data were collected on grade, specialty and prior experience (Gallagher JL; Stevenson N. Thorax 2009; 64(Suppl IV):A166). In 2010, 112 doctors surveyed after introduction of teaching programme.

Results: We had 108 responses in '08 compared to 100 in '10. 55/108 (51%) correctly marked site in 2008 compared to 75/100 (75%) in 2010.

Incorrect marking by grade; both years

<table>
<thead>
<tr>
<th>Grade</th>
<th>2008, No. (%)</th>
<th>2010, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation Doctor year 1 (F1)</td>
<td>14/27 (52) 8/28 (29)</td>
<td>8/21 (33) 6/25 (24)</td>
</tr>
<tr>
<td>Foundation Doctor year 2 (F2)</td>
<td>8/11 (73) 2/23 (10)</td>
<td>6/24 (33) 4/25 (16)</td>
</tr>
<tr>
<td>Senior House Officer (SHO)</td>
<td>12/27 (45) 6/19 (32)</td>
<td>8/24 (33) 5/25 (20)</td>
</tr>
<tr>
<td>Specialist Registrar (Spr)</td>
<td>13/29 (45) 2/21 (10)</td>
<td>8/24 (33) 5/25 (20)</td>
</tr>
<tr>
<td>Associate Specialist</td>
<td>N/A 1/25</td>
<td>1/25</td>
</tr>
<tr>
<td>Consultant</td>
<td>6/14 (43) 6/22 (27)</td>
<td>6/18 (43) 6/22 (27)</td>
</tr>
</tbody>
</table>

Incorrect marking by specialty (2010)

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Wrong</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaesthetics &amp; Critical Care</td>
<td>4 15 26</td>
<td></td>
</tr>
<tr>
<td>Medicine</td>
<td>19 71 26</td>
<td></td>
</tr>
<tr>
<td>Surgical &amp; orthopaedics</td>
<td>2 12 16</td>
<td></td>
</tr>
<tr>
<td>A&amp;E</td>
<td>0 2 0</td>
<td></td>
</tr>
</tbody>
</table>

83% doctors with prior respiratory experience were correct in '10 compared with 62% in '08. 75% Associate specialists, 86% Consultants, 100% F2s, 73% SHOs and 95% SpRs who felt confident at performing procedure, correctly identified site. In '10, 68% doctors received formal training.

Conclusions: Correct identification of insertion site improved in all grades after structured teaching and awareness programmes. Doctors with previous respiratory experience or in surgical specialties had better knowledge. Most had reasonable assessment of their competence and majority received training. Formal training should be given to all doctors.

P3706 Respiratory acute failure in unknown severe artereovenous malformations (MAV) in both lungs in patient with Williams syndrome (WS)

Roberto Bossi1, Paolo Tarsia1, Marilena Pappalettera 1, Antonio Nicolini2, 1Department of Cardio-Thoracic Diseases, University of Milan, Foundation IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano, Italy; 2Radiology Invasive Unit, Foundation IRCCS Ca'Granda Ospedale Maggiore Policlinico, Milano, Italy

The Williams syndrome is autoimmune genetic disorder identified due to genetic deletion, in 96% of patients there is a microdeletion of 7 chromosome. The cardiovascular (valvular stenosis) and the gastrointestinal effect (GER) as well known, but a severe artereovenous malformations in lungs district was never been described in literature. A woman 33 yo periodic controlled by geneist for Williams syndrome was hospitalized in our Dept, for acute respiratory failure with pO2 57mmHg pCO2 27mmHg, the oxygentherapy with Venturi mask 40,50,60% O2 and also with reservoir 15 L/min didn`t modified the pO2 and pCO2 The Thorax ray showed apparently a double consolidation in the basis of left and right lung, but a chest computed tomography angiography showed at the lower lobe of the two lungs a severe MAV. The expiratory functional test (EFT) show FEV1=69% of ml,FVC 56% of ml,PEF 75 75 75% FEV1 100% of ml, PEF 80% of ml. The interventional radiologist decided to for an embolization, in two different day the MAV, (during anesthiesia), first in the lower lung. 48 ml after the embolization the arterial blood gases showed (ABG) Pao2 66mmHg pCO2 32mmHg, Six week later were embolized the MAV of right lung and the control of ABG 48 after showed pO2 75mmHg pCO2 36mmHg The EFT show FEV1 86% of ml,FVC 78% of ml,PEF 88% of ml,FEF 75 75% 75% FEV1 50 60% of ml The vascular circulation in the lower lobe of both lung was to much better after the embolization The patient get out Hospital without needed Oxygen In the WS need a new approach to identify the presence of respiratory MAV before an acute episode of respiratory failure.

P3707 Transtracheal oxygen therapy as an effective treatment in patients suffering from severe hypoxemia and with high flow oxygen requirement: Description of two cases

Stefano Baglioni, Maurizio Dottorini, Elvio Scoscia, Emanuela Albo, Annalisa Elamli, Elisabetta Fiandera, Marisa Barbini, Oronzo Penza. Pulmonary and Respiratory Intensive Care Unit, “S.M. della Misericordia” Hospital, Perugia, Italy

Patients suffering from severe hypoxemia requiring high flow oxygen administration are very difficult to treat at home and have a poor quality of life. Transtracheal oxygen therapy (TTO) has been used for many years as an alternative to conventional device for oxygen treatment, but it is only used in a small portion of patients requiring long term oxygen therapy (LTOT) and nowadays this technique is rarely used, at least in our country.

We describe the cases of two patients admitted to our Unit due to severe hypoxemic failure needing very high oxygen flow.


Despite optimal medical treatment and respiratory therapist intervention, oxygen requirement remained very high in both cases (12-14 l/min). RR, ABG value and SaO2 improved during TTO as showed in Tables 1 and 2.

Table 1. O2 therapy by mask

<table>
<thead>
<tr>
<th>PaO2, mmHg</th>
<th>PaCO2, mmHg</th>
<th>pH</th>
<th>SaO2, %</th>
<th>O2, l/min</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>44</td>
<td>34.2</td>
<td>7.45</td>
<td>80</td>
<td>12</td>
</tr>
<tr>
<td>Patient 2</td>
<td>40</td>
<td>48</td>
<td>7.44</td>
<td>78</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 2. O2 therapy by TTO

<table>
<thead>
<tr>
<th>PaO2, mmHg</th>
<th>PaCO2, mmHg</th>
<th>pH</th>
<th>SaO2, %</th>
<th>O2, l/min</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>61</td>
<td>38</td>
<td>7.44</td>
<td>91</td>
<td>4</td>
</tr>
<tr>
<td>Patient 2</td>
<td>62</td>
<td>39.8</td>
<td>7.46</td>
<td>92</td>
<td>3</td>
</tr>
</tbody>
</table>

We utilized a modified Seldinger procedure (SCOOP cathether) to perform TTO. We didn’t observe significant adverse events during the procedure and the follow-up (one month and 2 years respectively). Dyspnoea (Borg scale) and quality of life improved significantly. TTO should be considered as a safe and effective option in LTOT in a well-defined group of patients, in particular for those requiring high oxygen flow administration.

667s

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P3708
Two cases of benign tracheal stenosis successfully treated by minimally invasive endobronchial intervention
Atila Boldú1, Peteris Juris Lieģins2, Ilga Ronis3. 1Dept for Pulmonology and Allergology, P. Stradiņs Clinical University Hospital, Riga, Latvia; 2Endoscopy Suite, Infectology Center of Latvia, Tuberculosis and Lung Diseases Clinic, Riga, Latvia; 3Pathology Center, Riga Eastern Hospital, Riga, Latvia

Case no. 1: In Oct. 2008 a 71 y.o. lady underwent thyroidectomy. After the operation bilateral vocal cord paralysis appeared causing dyspnea. A tracheostomy tube was placed to ease breathing. In two weeks time vocal cord function came back, however attempt to remove tracheostomy tube was unsuccessful because of symptoms of tracheal obstruction. We met the patient in June 2009. FBS disclosed a mass of granulation tissue obstructing trachea. Microbiologic examination of bronchial aspirate showed MRSA infection. By using rigid bronchoscopy granulation tissue was removed and 15-mm straight silicone stent was placed in the narrowed segment of trachea and antibacterial treatment was prescribed. A couple of days later the stent migrated, so it had to be repositioned and sutured to the anterior wall of trachea by transcutaneous transtracheal suture. The stent was removed two months later. There are no signs of tracheal stenosis observed during the following 2 years.

Case no. 2: A 76 y.o. lady was operated on in Febr. 2009 for perforative colitis. Postoperatively she had tracheostomy placed with ventilatory support for a week. Soon after discharge from hospital the lady noticed cough and progressive dyspnea. She was admitted to our hospital in Sept.2009. On FBS we found granulation tissue mass obstructing trachea. There was Ps. aeruginosa grown in the bronchial aspirate. Granulations were removed by using rigid bronchoscope and endobronchial argon plasma coagulation and the patient received antipseudomonal antibiotics. The procedure had to be repeated in 3 weeks time. Afterwards our patient recovered well and there has not been recurrence of tracheal stenosis observed.

P3709
Comparison of I-gel and laryngeal mask for fibrobronchoscopy
Svilen Alexov1, Dimitar Kostadinov2, Danal Petrov3. 1Anesthesia and Intensive Care Clinic, University Pulmonary Hospital, Sofia, Bulgaria; 2Bronchoscopy Department, University Pulmonary Hospital, Sofia, Bulgaria; 3Thoracic Surgery Clinic, University Pulmonary Hospital, Sofia, Bulgaria

Background: The I-gel is a novel supraglottic airway device. Because of its design, material and small noninflatable cuff we hypothesized that it might be as effective as routinely used laryngeal mask (LM) in facilitating fibrobronchoscopy and artificial ventilation, but with less throat complaints. Objectives: To evaluate the efficacy of I-gel for providing adequate ventilation, good conditions for fibrobronchoscopy and patient’s safety under intravenous sedation in comparison with classically used LM.

Patients and methods: Two randomized groups were formed: I-gel (22pts) and LM (21pts). Anesthesia was induced and maintained with Propofol, Succinylcholine +/- Atracurium. Devices were positioned (size 4 for women and 5 for men) and IPPV with 100% O2 was started. We measured time to successful insertion, success rate of insertion first attempt, airway peak and leak pressure, We monitored the changes of tidal volumes (VT), airway peak pressures (PAW), end-tidal CO2, gas leakages (% of VT) when bronchoscope was at bronchial level. Postoperatively patients were interviewed for throat complaints, bronchoscopists for fibropic glottic view.

Results: The success rates of insertion were 21/22 (95%) for I-gel and 19/21 (90%). 4 gel group mean shorter time to insertion (12.2±4.9 vs 18.6±6.8s; p<0.05), better fiberoptic view 3/22 (14%) vs 7/21 (33%) p<0.05; regression analysis showed that a change of one standard deviation of midazolam usage better predict the dose of the second. Regression analysis showed that a change of one standard deviation of midazolam produced a change of 0.372 standard deviations of the dose of fentanyl (p<0.001).

Conclusions: There is a statistically significant correlation between age and amount of sedative required. We can predict the dose of sedation required in flexible bronchoscopy in different age groups. Dose of one sedative agent can be used to predict the dose of the second.

P3710
Feasibility and safety of propofol sedation in flexible bronchoscopy
Peter Grendelmeier, Gabriel Kurer, Eric Pfllmin, Michael Tamm, Daiana Stolz. Clinic of Pulmonary Medicine and Respiratory Cell Research, University Hospital Basel, Basel, Switzerland

Background: Propofol is a sedative-hypnotic with a rapid onset of action. There are only limited data evaluating propofol for flexible bronchoscopy. We analyzed the feasibility and safety of propofol for bronchoscopy in a high output tertiary care center.

Methods: Prospective data on patients undergoing flexible bronchoscopy at the University Hospital Basel, Switzerland were analyzed. Patient demographics, ASA class, Mallampati class, indication for bronchoscopy, bronchoscopic procedures, duration of examination, medication requirements, minor and major adverse events, hemodynamic parameters, as well as cough scores during the procedure were documented. Patients were followed up to discharge from the bronchoscopy suite.

Results: Data on 440 patients with mean age 60 years (± 15.5, 200 male) were analyzed. The most common diagnostic procedures were bronchoalveolar lavage in 253 cases (31.5%) and bronchial washing in 174 cases (21.7%). The mean duration of the procedure was 19.6 min (± 12.08). The mean propofol dose was 200 mg (± 107.5) corresponding to ± 3.8 mg/kg (± 1.70). Minor adverse events included transient desaturation in 72 (16.4%), hypotension in 68 (15.4%) and minor bleeding in 11 (2.5%) patients. No major adverse events were recorded. The median decline in systolic blood pressure after initiation of sedation was 14 mmHg (± 28). A drop in systolic blood pressure greater than 20 mmHg was observed in 166 of the 440 patients (37%).

Conclusion: Propofol sedation for flexible bronchoscopy is feasible and safe.

P3711
Predicting sedation in flexible bronchoscopy
Ruth Mc Donagh, Sheikhib Shabbas, John O’Neill, Eddie Moloney, Stephen Lane. Respiratory Medicine, Adelaide and Meath Hospital, Incorporating the National Children’s Hospital, Dublin, Ireland

Introduction: Since 1985, midazolam has been widely used along with fentanyl for sedation in bronchoscopy. The aim of this study was to establish a correlation between patient age and the amount of midazolam required to produce adequate sedation.

Methods: Medical records of all the patients who underwent bronchoscopy in 2010 were accessed. Adequate sedation was defined as “a drug-induced depression of consciousness during which patients respond purposefully to verbal commands”.

Results: Of all patients (n=511), 54.4% were male and 45.6% female. Median age and dose of midazolam (range) was 60 years (16-91) and 6mg (0.14) respectively. The Spearman Rank correlation between sedatives and age were: midazolam (r=-0.486, p=0.000) and fentanyl (r=-0.396, p=0.000). Analysis of variance showed that every decade of increase in age saw a decrease in the dose of sedation required, and the difference in means of the dosage in each age group was statistically significant (p<0.001).

Conclusions: There is a statistically significant correlation between age and amount of sedative required. We can predict the dose of sedation required in flexible bronchoscopy in different age groups. Dose of one sedative agent can be used to predict the dose of the second.
their maximum dose were reviewed with particular reference to their weight. The
Mean weight in this subset was 60.6kg.

Discussion: Patients in this group were frequently given more than their calculated
maximum dose of Lidocaine at bronchoscopy. Those most at risk had cardiac or
hepatic insufficiency. Patients who were given too much Lidocaine or who were
within 100mg of being given too much had a lower Mean weight than that of
the whole of the group by 10.4kg.

Conclusions: Lidocaine use is necessary for patient comfort and success of bron-
choscopy. However, it seems more commonplace than previously thought to give
higher doses of Lidocaine than those recommended.

P3713
Patient comfort score at bronchoscopy
Alina Ionescu, Katie Pink. Respiratory Medicine, Royal Gwent Hospital, New-port, Wales, United Kingdom

The aim of this study was to assess the patient comfort score immediately after
bronchoscopy (by nursing staff and patient) and later on at follow up (by patient)
in a teaching hospital.

Subjects and methods: One hundred and four consecutive patients (62 male,
mean (SD) age 63.2 (15.6) were included and complete data was analysed for
96. The indication for bronchoscopy was radiological suspicion of lung cancer
(39), haemoptysis (25), slowly resolving pneumonia (18), radiological picture
of interstitial lung disease (16), cough (4) and mediastinal lymphadenopathy (2).
The nurses used a patient comfort score (1- mild to 4-severe) and a sedation score
(1-awake, 2-sedated). While in recovery and then again at follow up appointment
(7-14 days later) the patients were asked to describe their comfort score (1-mild
to 4-severe). Patients received Midazolam for sedation (1-7 mg i.v.) and local
anesthetic Xylocaine 2%. Data was analysed in Spss and correlation coefficients;
Chi square Kruskal Wallis used.

Results: The comfort score by nurses correlated with the score by patient in
recovery (p=0.006) and at follow up (p=0.003). The two patient scores correlated
(p=0.001, Pearson’s 0.51). No difference in the comfort scores was found when the
grade of the operator, dose of Midazolam, type of local anaesthetic, specimens
taken, patient’s position or the recovery sedation score were taken into account.
To conclude, the patient comfort score assessed by nursing staff is a good indicator
of the patient’s own perception of their discomfort at bronchoscopy. The patient
perceived comfort score is not different after the sedation effect of Midazolam
wears off compared to the score assessed immediately after the bronchoscopy.

P3714
Patient satisfaction survey on bronchoscopy explanation
Rajesh Kumar Yadavilli, Ian Webster. Thoracic Medicine, Royal Bolton Hospital, Bolton, Lancashire, United Kingdom

Background: Bronchoscopy is routinely performed by the Chest physicians and is
explained to the patients before they give written consent. We wanted to see if
the patients undergoing the procedure at Royal Bolton hospital, UK were satisfied
with our explanation and see if anxious patients need higher doses of sedation.

Methods: Patients were asked to fill the satisfaction questionnaire with 8 domains
just before undergoing procedure. Interpreters were used for the non-English
speaking patients.

Results: 61 patients, undergoing bronchoscopy between Jan 2009 to Jun 2009
answered survey questions with domains in (Table 1) rating their satisfaction
between 1-10. Ratings <6 were considered good response except for domain 8
where <5 considered less anxious.

Table 1

<table>
<thead>
<tr>
<th>S. No</th>
<th>Patient satisfaction domains</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Understand the exact reason for test</td>
<td>39 / 61</td>
<td>64</td>
</tr>
<tr>
<td>2</td>
<td>Understand procedure</td>
<td>50 / 61</td>
<td>82</td>
</tr>
<tr>
<td>3</td>
<td>Understand complications</td>
<td>49 / 61</td>
<td>80</td>
</tr>
<tr>
<td>4</td>
<td>Understand post procedure care</td>
<td>54 / 61</td>
<td>89</td>
</tr>
<tr>
<td>5</td>
<td>Involve patient to have the test</td>
<td>56 / 61</td>
<td>92</td>
</tr>
<tr>
<td>6</td>
<td>Satisfaction on written information</td>
<td>48 / 61</td>
<td>78</td>
</tr>
<tr>
<td>7</td>
<td>Satisfaction on time and venue</td>
<td>59 / 61</td>
<td>97</td>
</tr>
<tr>
<td>8</td>
<td>Anxious about the test</td>
<td>27 / 61</td>
<td>44</td>
</tr>
</tbody>
</table>

Conclusion: PDT with bronchoscopic guidance is a safe and easy procedure that
can be done by an intensivist at the bedside setting.

P3715
Fibroptic bronchoscopy assisted percutaneous dilational tracheostomy:
How safe is for an intensivist to perform it?
Kyriaki Tzitzikaki, Georgios Kostoulidou, Christos Tsakalakis, Panagiotis Zotos, Nikidimos Katsarelis, Paraskevi Spyrou, Konstantinos Tsionas, Michalis Pedonomos. ICU; General Hospital of Athens

Background: Intensive care unit (ICU) patients, mainly those who need prolonged
mechanical ventilation, may require tracheostomy, which once was done in the operating
room. Percutaneous dilatational tracheostomy (PDT) was first described in 1985
and now is a well-established procedure that can be performed at the bedside by
an intensivist with less surgical equipment required.

Aim: To evaluate the safety of performing percutaneous dilatational tracheostomy
(PDT) with Fiberoptic bronchoscopy assistance in patients requiring prolonged
mechanical ventilation.

Material and method: Sixty three patients 17-89ys of age, 28 females and 35
males underwent PDT due to prolonged endotracheal intubation between December
2009 and January 2011. The procedures of percutaneous dilatation tracheostomy
with guide wire dilator forceps (GWDF) were done bedside with bronchoscopic
guidance under general anesthesia in the ICU department. Operative and post
operative complications were observed.

Results: Overall complication rate was low and occurred in 5 patients (7, 9%),
there was no procedure-related mortality. Subcutaneous emphysema without pneu-
mothorax occurred in one patient, one patient had a transient hypotension related
to sedation and three patients had peristomal oozing.

The mean time for completion of the procedure was 15 minutes and no patient
required conversion to surgical tracheostomy. The bronchoscopic examination that
was performed in 38 of the patient 20 days after tracheostomy tube removal
showed no scar formation.

Conclusion: PDT with bronchoscopic guidance is a safe and easy procedure that
can be done by an intensivist at the bedside setting.

P3716
Outcomes and complications of bronchoscopy-guided percutaneous
dilational tracheostomy
Jose Andres Garcia Romero de Tejada1, Rosa Mar Gómez Punter 1, Javier Aspa Marco1, Olga Raja Naranzo1, Servicio de Neumologia, Hospital Universitario de la Princesa,
Madrid, Spain, 2 Unidad de Cuidados Intensivos, Hospital Universitario de la Princesa, Madrid, Spain

Background: Percutaneous tracheostomy (PT) is one of the most frequently per-
formed procedures in Intensive Care Unit (ICU). As many as 10% of patients
requiring at least 3 days of mechanical ventilation will receive a tracheostomy.
Some of the complications can be severe and can be prevented with bronchoscopic
assistance.

Aim: To investigate the outcome and complications of bronchoscopy-guided PT.

Material and methods: 59 patients was prospectively included from March-
November/2010. Demographic data, time of procedure and complications were
studied. Patient’s heart rate, blood pressure and continuous pulse oximetry were
monitored. All PT were performed under bronchoscopic control at the patient’s
bedside in the ICU by a medical intensivist and a pulmonologist. Statistical
software Sigma-Stat 3.5 was used.

Results: 54% of patients: male. Patient mean age: 60. Mean body mass index:
25.2 (Standar Error Mean-SEM 0.5). Mean APACHE index: 20.1. SAPS: 44.5.
The reason for admission at ICU was due to medical conditions (70%) and sur-
geries (9,4%). Mean duration of PT: 3.5 mn. Main complications: O 2 desaturation
(9.4%), neuromuscular failure (9.4%) and prolonged endotracheal intuba-
tion (9,4%). Mean duration of PT: 3.5 mn. Main complications: O2 desaturation
“<90% (7.7%), submucosal tunnelization of tracheal wall (3.8%), tracheal ring
break (15%), bleeding requiring hemostasis (5.7%) and major hemorrhage requir-
ing blood transfusion (2%). Extubation, early decannulation, injury to posterior
tracheal wall, and barotrauma were not described.

Conclusions: PT is a safe technique. The use of bronchoscopy reduces duration of
procedure, decreases morbidity and can identify complications missed by a
“blind” approach.

P3717
The real-interventional-bleeding simulator: A new training and education
model for interventional bronchoscopy
Martin Hackl1, Armin Sulzmann2, Michael Luef1, Klaus Lemke2, Herbert Jamnig1.

1Pneumolgie, Thalk LH, Natters, Natters, Tirol, Austria; 2Arbeitsform, Prodesan, Heiligkreuzstr, Heidelberg, Germany

Introduction: Biosimulation models might play a crucial role to train interven-
tional procedures especially acute endobronchial bleedings. The simulation of an
reported emergency situation enables the bronchoscoptist and his team to act
professionally.

Background: Until now the available models couldn’t reproduce this key aspect
in interventional bronchoscopy in a satisfactory way.

Methods: We developed a new biosimulation model with 2 transparent covers
and a free moving diaphragm. The control unit with an vacuum pump allows full

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expansion of the pig training lung. A flexible bedded connector adds the trachea of the head to the pig lung. This allows a training in rigid bronchoscopy on an expanded pig lung. We inserted flexible tubes into the bronchial tree to simulate different bleeding situations with artificial blood. The realistic effect was increased by sutured "endobronchial tumors".

**Results:** At an interventional training course in November 2010 organized by the Austrian Society of Pneumology the system allowed the participants to train various kinds of interventions. The feedback given by all the 16 trainees showed a convincing and realistic effect to train interventional procedures. Furthermore, the possibility of managing the bleeding situations could be trained.

**Conclusions:** This model might be helpful to develop algorithms for all interventional procedures especially connected to the handling of bleedings.

**P3718**

**Improved diagnostic of electromagnetic navigation bronchoscopy in peripheral lung lesions: Are the size and the bronchus sign important?**

Olga Rajas Naranjo, Rosa Mar Gómez Punter, José Andrés Gª Romero de Tejada, Emma Vazquez Espinosa, Julio Ancochea Bermúdez, Javier Aspa Marco.

**Servicio de Neumología, Hospital de la Princesa, Madrid, Spain**

**Background:** Electromagnetic navigation (EN) is a technique that can be used with bronchoscopy to obtain samples of small peripheral nodular lesions. It enables both transbronchial biopsies and fine-needle aspiration to be performed. EN can obviate the need for more invasive diagnostic procedures thus saving time and avoiding complications.

**Aim:** To evaluate the diagnostic yield of electromagnetic navigation-guided bronchoscopy (ENB) in patients with peripheral lung lesions and analyze the results according to the size of the lesion and the presence of a bronchus sign in the computed tomography (CT).

**Patients and methods:** From April 2009-October 2010, 50 consecutive patients were included. We used the Bronchus® system (Superdimension) with a therapeutic bronchoscope (Olympus, working channel 2.8mm). All subjects had CT scans of the chest, configured with slices of 1-2mm thickness at 1-1.5mm intervals in DICOM format.

**Results:** 70%: male. Median age: 69. The average size of the lesions was 22.6mm (≤20mm: 19 (38%) and >20mm: 31 (62%)). Mean duration of the intervention: 25mm. Diagnosis rate of this procedure was 67%; 61% for lesions ≤20mm in diameter, and 71% if >20mm. The bronchus sign (BS) was identified in 44% patients. In cases with BS, the diagnosis yield increased until 82% and when BS was negative: 54% (statistically significant variable).

**Conclusions:** FBEN is a safe method that increases the diagnostic yield of peripheral lung lesions. 67% of cases resulted in obtaining diagnostic tissue. If BS was identified, diagnostic yield was statistically significant increased. There was no relation with lesion’s size.

**P3719**

**Transbronchoscopic 3D volumetric optical coherence tomography (OCT) imaging of airways**

Jiefeng Xu1, Xingde Li2, MingYing Zeng2, Sheng Xu4, Rex Yung4, 1 Whitaker Biomedical Engineering Institute, Dept of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, United States; 2 Whitaker Biomedical Engineering Institute, Dept of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, United States; 3 Medicine, Division of Pulmonary & Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States; 4 Clinical Informatics, Interventional, and Translational Solutions (CITS), Philips Research North America, Briarcliff, NY, United States; 5 Medicine and Oncology, Division of Pulmonary & Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States.

**Introduction:** OCT, a non-invasive optical modality capable of high-resolution cross-sectional imaging of tissue microanatomy, holds potential of "in-vivo" diagnostics of pathology. Development of miniature probes & laser sources have advanced real-time OCT imaging of small structure such as airway morphologies.

**Aim:** To develop 3D volumetric OCT imaging of airways.

**Methods:** IRB approved porcine protocol. Airways imaged with a 1300-nm swept-source OCT at a 40 kHz A-scan rate, placed within a 1.3 mm catheter advanced through 2 mm bronchoscope channel. Axial & lateral resolution of the system is ~7 μm and ~20 μm in tissue, respectively. 3D volumetric imaging achieved by rotating the OCT catheter while pulling it back (similar to spiral CT), at an imaging speed of 10 frames/sec & helical rotation pitch of ~100 μm.

**Results:** 3rd to 7th generation airways imaged, spiral scanning data recorded, then processed. In addition to presentation as isolated axial slices, playback can present spiral imaging reformatted as 3D volumes plus virtual fly-through of airways.

**Conclusion/Clinical significance:** Transbronchoscopic OCT imaging can generate high-res axial imaging of airway microstructures. Reconstruction of dataset generates dynamic 3D imaging. In-vivo temporal monitoring of pathologic events such as cancer progression or physiologic effects of bronchoconstriction in airway disease will advance diagnosis and management of lung diseases.