

pleurodesis whereby the IPC could be removed according to the presence of septations (pleurodesis in those with no septations 16%, 5/31 vs. 13%, 2/16 in those with septations, $p = 1.0$). There were no patients in either group in whom the drain was removed due lack of drainage in the context of a persistent pleural collection. There was no significant difference in overall complication rate according to the presence of septations (16%, 5/31, in the no septation group vs 13%, 2/16, in the septation group, $p = 1.0$).

Conclusion These results suggest that the presence of septations on the pre-insertion thoracic ultrasound do not affect the rate of pleurodesis or drain removal due to lack of drainage and persistent pleural effusion. The numbers in the study are small and a limitation is the lack of assessment of post-procedure breathlessness in our patients (e.g. with a visual analogue scale). The presence of septations should not deter consideration of IPC insertion in the management of malignant pleural effusions.

P182 **PROPHYLACTIC DOXYCYCLINE FOLLOWING INDWELLING PLEURAL CATHETER INSERTION FOR MALIGNANT PLEURAL EFFUSIONS**

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Introduction The insertion of indwelling pleural catheters (IPCs) allows outpatient based management of malignant pleural effusions. This group of patients frequently require chemotherapy and there is concern over infection rates from IPCs which has the potential to delay or prevent such treatment. The infection rate was reported as 10% in a prospective trial of IPCs. In our tertiary pleural service we have elected to routinely prescribe 7 days doxycycline 100 mg once daily following IPC insertion. This study examined our infection rates using this practice.

Method Data was collected from a tertiary respiratory and pleural service. Prospective data is collected on all patients undergoing IPC insertion at UHSM. Immediate post-procedure data is collected and a further clinical and case-note review undertaken at 6 months. Pre-defined immediate (post-procedure), early (30 days) complications are recorded. Infection is defined as the prescription of antibiotics (oral or intravenous) for suspected or confirmed pleural infection or drain-site cellulitis. This study is a retrospective review of the prospectively maintained database. To ensure six months of follow-up data for all patients the analysis was restricted to patients undergoing IPC insertion prior to 31/12/2014.

Results 62 patients with complete datasets underwent IPC insertion between 01/01/2013 and 31/12/2014. All patients received 7 days of prophylactic doxycycline at a dose of 100 mg OD. One patient (1.6%) suffered drain site cellulitis requiring antibiotics within 30 days of insertion. There were two cases (3.2%) of pleural infection treated with antibiotics (both within 30 days of insertion and required intravenous antibiotics and admission). In these cases the IPCs were not removed but it did fall out in one case where the patient developed delirium with infection.

Conclusion The infection rate in this prospectively collected data is lower than rates reported in large prospective randomised controlled clinical trials. This may suggest a benefit from the routine use of prophylactic antibiotics. A randomised controlled trial of prophylactic antibiotics versus no antibiotics following IPC insertion may be warranted.

P183 **MESOTHELIOMA IN RURAL SCOTLAND: A REVIEW OF 5 YEARS OF EXPERIENCE**

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Introduction Mesothelioma is often associated with areas of heavy industry. These areas generally have easy access to cardio-thoracic facilities providing comprehensive services. We reviewed our experience of mesothelioma in the most rural part of Scotland to identify associated occupations and establish what effect configuration of local services, and the distance to the nearest thoracic surgical service had on clinical management.

Methods From 2010 the details of all patients in Highland with pleural mesothelioma have been recorded. The case notes of these patients were reviewed. Those who had presented and been investigated elsewhere were excluded. Information on occupation, investigations selected, treatment given, and survival were recorded.

Results We identified 47 mesothelioma patients. Of these 10 patients were excluded because of non-availability of notes, peritoneal mesothelioma, or presentation and investigation elsewhere. Of the remaining 37 cases the mean age at diagnosis was 71 years, 86% were male, and occupations included electricians, engineers, sheet metal workers, plumbers, joiners, builders, and shipyard workers. Two patients had been exposed in the nuclear industry. Fourteen patients underwent Abram's pleural biopsy, of which 2 (14%) were diagnostic, 18 patients had CT guided biopsy of which 12 (67%) were diagnostic, and 13 patients had thorascopic biopsy of which 10 (77%) were diagnostic. Median survival was 10.9 months (interquartile range 12.6 months). Those with performance status (PS) 0 had median survival of 31.7 months, and PS 1, 8.8 months ($P < 0.001$ PS 0 Vs PS 1). For patients PS 0–2 who received at least 1 cycle of chemotherapy median survival was 12.9 months compared with 5 months without. All were discussed in MDT meetings. 25 patients had identifiable asbestos exposure, but only in 9 of these (36%) was there clear documentation that asbestos compensation advice had been given.

Conclusions The Scottish Highlands is affected by mesothelioma despite the rural setting. Abram's pleural biopsy is not an effective technique for suspected mesothelioma and is not appropriate even if access to thorascopic biopsy involves considerable travel. The prognosis remains poor, and although survival is better in patients who receive chemotherapy, this could be explained by pre-existing differences in those selected for chemotherapy.

P184 **MODIFIED WHO SAFETY CHECKLIST FOR PLEURAL INTERVENTIONS – PREVENTING SYSTEM ERRORS**

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Introduction Pleural interventions (PI) are generally safe, however adverse events occur due to human error or system failure. The World Health Organisation (WHO) safety checklists are widely used in surgery and reduce complications.¹ The Royal College of Physicians has recently advocated their use for invasive medical procedures.²

Aims

1. To develop and implement a modified WHO surgical checklist for use in PI; specifically thoracoscopy (TS) and chest drain (ICD) insertion.

Methods Adverse events for TS were identified using a locally developed TS database (previous 3 years data) and ICD events were identified using our unit's BTS National audit data.

Following a MDT discussion we developed and implemented a modified WHO checklist for the specific risks of TS and ICD. The checklists follow the three-part structure recommended by the WHO; 1. Sign in (before arrival to procedural area), 2. Time out (before starting), 3. Sign out (before leaving).

Checklist effectiveness was reviewed 6 months following implementation.

Results**Pre-implementation**

For TS there were a small number of adverse events (mistaken identity of an abnormal ECG in patients with similar names, delay in pre-procedure blood results, ECG not performed, intravenous fluids not readily available, kinked ICD, thromboprophylaxis not prescribed); most events led to delayed procedure only.

For ICD insertion, several avoidable patient safety issues were identified: 5.6% no support nurse available; insufficient documentation of observations pre (13.7%) and post (5.6%) ICD insertion.

Post-implementation

No adverse events recorded in TS and an improvement in ICD patient safety issues (procedure not done without support present, observations documented in 42% of cases). Team-working and communication reported to have improved.

However, ICD checklist completion rate was poor (53%), with form retrieval rates in TS low compared to reported completion rates (66.7% v 100%). Forms were generally incomplete. **Conclusion** Most adverse events identified were due to system errors despite previously available safeguards. Well-designed procedural checklists can improve patient safety. Paper versions were not fully completed therefore we have incorporated an electronic version of the checklist into the procedural database, which has to be completed before the procedure starts.

REFERENCES

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- 2 *Clin Med.* 2014;**14**:468–474

P185 EVALUATION OF THE LENT PROGNOSTIC SCORE IN A LARGE TERTIARY PLEURAL SERVICE

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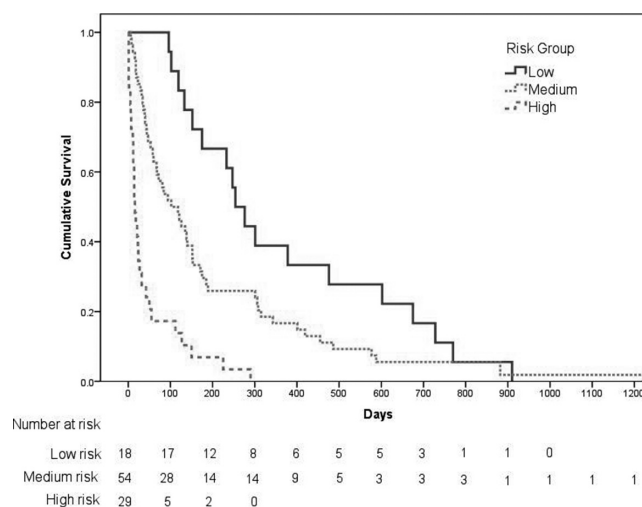
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Introduction and objectives Reliable predictors of survival in malignant pleural effusions (MPE) have far reaching applications in clinical practice, not least tailoring individual treatment strategies. The 'LENT' score (pleural fluid Lactate dehydrogenase; Eastern Cooperative Oncology Group performance score; Neutrophil-to-lymphocyte ratio; Tumour type) was developed and validated as a clinical prognostic scoring system from three international prospective patient databases.¹ The aim of this study

was to evaluate the LENT score in a further UK population of patients with MPE, geographically separate from those in the original study.

Methods Our hospital is a large tertiary centre for a physician-led pleural service (including medical thoracoscopy), a regional mesothelioma centre and a regional thoracic surgical centre. A retrospective study of all patients with positive (i.e. diagnostic for malignancy) pleural cytology or histology from 2010 to 2014 was undertaken. This timeframe allowed a minimum of 12 months follow-up for all patients. Survival data was obtained from national death registries. All patients in whom all LENT criteria were available were included in the analysis. A Kaplan-Meier curve and a Cox regression model were used to assess the LENT risk category. Harrell's C statistic was used to assess the accuracy of the regression model and mortality rates at time points of interest were calculated.

Results The LENT score was calculated for 101 patients diagnosed with MPE. The median survival (days, IQR) for the low (n = 18), medium (n = 54) and high risk (n = 29) groups were: 254 (152–602), 102 (40–301) and 16 (7–42). In the high risk group, only 31% of patients survived 1 month and 7% survived 6 months. There is a statistically significant difference in the survival times in the different risk groups according to the log-rank test (p < 0.001). Harrell's C statistic in this cohort is 0.69 (see Figure 1).



Abstract P185 Figure 1

Conclusions The LENT scoring system has again been shown to be a good tool for predicting survival in patients with MPE when applied to a geographically distinct cohort of patients to the original study. The LENT score continues to be a clinically valuable tool in the assessment of patients with MPE.

REFERENCE

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P186 CHEST DRAIN CARE BUNDLE IMPROVES CHEST DRAIN INSERTION IN DISTRICT GENERAL HOSPITAL

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