

reasons: foreign language only, not available, or inadequate data/follow-up information.

The remaining 41 papers' data were extracted, showing variation in size, quality and type of studies. Eight randomised trials across differing patient groups (both medical and surgical) report markedly varying recurrence rates (Table 1). Six prospective series (n = 398) found thoracoscopic talc insufflation (RR: 3 to 7%) and tetracycline (9% via chest drain or poudrage) to be effective; with iodopovidone less so (13%). Of 27 retrospective case series (n = 4,990), seven were reasonable quality, finding good efficacy of adding talc or silver nitrate post-bullectomy (RR: 1 to 2%); better than minocycline or acromycin post-bullectomy (3 and 4%) or talc post-electrocoagulation (5%). The remaining 20 were poorer quality with high risk of bias, assessing 7 different agents.

**Conclusions** Numerous agents have been used for chemical pleurodesis for spontaneous pneumothorax. Chemical pleurodesis post-surgical treatment or via thoracoscopy appears most effective. Evidence for definitive success rates of each agent is limited by the small number of randomised and comparative trials.

### P180 5 YEAR RETROSPECTIVE EVALUATION OF INDWELLING PLEURAL CATHETER SAFETY IN PATIENTS UNDERGOING CHEMOTHERAPY

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10.1136/thoraxjnl-2015-207770.317

**Introduction and objectives** Indwelling pleural catheters (IPC) are well established in the management of malignant pleural effusions. However, there is some reluctance in its use in patients receiving chemotherapy due to a hypothetical increased risk of infection. There are no prospective trials primarily examining IPC safety in chemotherapy. Retrospective series suggest a similar IPC-related complication rate in chemotherapy and non-chemotherapy patients.<sup>1,2</sup> Our primary study objective is to determine the safety of IPC insertion in chemotherapy.

**Methods** We conducted a retrospective analysis of all patients who underwent IPC insertion for malignant pleural effusion at our trust from September 2010 to December 2014. Data was collected on IPC insertion and removal, tumour type, systemic chemotherapy, pleural infection and other complications.

**Results** 104 patients were identified, (Table 1) 43 in chemotherapy group and 61 in non-chemotherapy group. The incidence of pleural infection in chemotherapy group vs non-chemotherapy group, 4 (9.3%) vs 4 (6.5%) respectively, was not statistically different (Fisher's exact  $p = 0.4$ ). There was no significant difference in 6-month infection-free duration from the date of IPC insertion (log rank  $p = 0.6$ ). Overall 6-month mortality in chemotherapy group was significantly lower than in non-chemotherapy group (log rank  $p = 0.007$ ).

**Conclusions** This is the second largest retrospective case-control series which concludes that systemic chemotherapy is safe in patients with indwelling pleural catheters.

#### REFERENCES

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**Abstract P180 Table 1** Patient demographics, interventions and outcomes

	Chemotherapy with IPC in-situ	No chemotherapy with IPC in-situ
<b>No. of patients</b>	43	61
<b>Mean age (yrs)</b>	64	68
<b>Cancer primary</b>		
Lung (Small cell)	0	1
Lung (Non-small cell)	17	16
Mesothelioma	3	9
Breast	11	16
Other	12	19
<b>Median duration IPC in-situ (days)</b>	69 (13–283)	28 (2–413)
<b>Mean duration of concurrent chemotherapy (days)</b>	76 (2–440) (~4 cycles)	-
<b>Chemotherapy regimens</b>		
Antimetabolites	24	-
Platins	22	-
Taxanes	10	-
EGFR/TKI inhibitors	8	-
Biologics	5	-
Topoisomerase inhibitors	1	-
Vinca alkaloids	1	-
Anthracyclines	1	-
<b>Complications</b>		
Pleural infection	4	4
Cellulitis	2	1
Pain	2	2
Drain blockage	1	0
<b>6-month Mortality</b>	15 (35%)	36 (59%)

### P181 INDWELLING PLEURAL CATHETERS FOR MALIGNANT PLEURAL EFFUSIONS – DO SEPTATIONS CHANGE OUTCOMES?

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10.1136/thoraxjnl-2015-207770.318

**Introduction** The insertion of indwelling pleural catheters (IPCs) allows outpatient based management of pleural effusions and has been shown to be effective as a primary management strategy and following failed attempts at pleurodesis. The presence of septations may be associated with incomplete drainage and may make the procedure more complex. This study aimed to assess if the presence of septations on thoracic ultrasound changed the outcome of IPC insertion and to review complication rates.

**Method** Prospective data is collected for patients undergoing insertion of IPCs at a tertiary pleural referral centre. Pre-procedure thoracic ultrasound is performed in all patients and a grading of septations made; no septations, mild (<4), moderate (4–9), severe septations (>9). Immediate, early (30 days) complications as well as six month follow-up data are recorded. This study is a retrospective analysis of this prospectively maintained database.

**Results** A total of 47 patients with complete datasets were identified between 2013–2014; 34% (16/47) had mild/moderate/severe septations (n = 7, 5, 4 respectively) and 66% (31/47) had no septations. There was no significant difference in the number of patients achieving resolution of pleural effusion and

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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10.1136/thoraxjnl-2015-207770.319

**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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10.1136/thoraxjnl-2015-207770.320

**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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10.1136/thoraxjnl-2015-207770.321

**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.<sup>1</sup> The Royal College of Physicians has recently advocated their use for invasive medical procedures.<sup>2</sup>