

Abstract P177 Table 1

	Unit cost (£)	Total Savings (+)/costs (-) for ambulatory management
Bed day	320	+22,400 (N = 70)
Attendance at ambulatory care	200	-6800 (N = 34)
Chest x-ray	26.36	-949 (N = 36)
Pneumostat Device	28	-588 (N = 21)
Overall savings		+14,063 (£703/patient)

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P178 AMBULATORY CARE OF PRIMARY SPONTANEOUS PNEUMOTHORAX WITH A PNEUMOSTAT DEVICE – COST EFFECTIVE AND SAFE

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Introduction and objectives A Heimlich Valve attached to an intercostal drain facilitates the ambulatory management of primary spontaneous pneumothorax (PSP) and in selected individuals permits outpatient care. We have 3 years of experience in doing this with Atrium's *Pneumostat* device. We ascertained the safety and cost effectiveness of this ambulatory pathway.

Methods We conducted a retrospective evaluation of all patients presenting with a PSP from March 2013 to December 2014. Data was collected on management, length of stay (LOS) and complications. Outpatients with a *Pneumostat* are advised to attend the chest clinic 24 h after bubbling stops for review for drain removal, or earlier if any concerns. Medical bed days saved was calculated as time at home with the device *in situ*, as standard BTS care would require an inpatient stay with a drainage bottle.

Results 73 patients presented with a PSP. 34 patients required chest tube drainage, 24 of which were managed as an outpatient with a *Pneumostat*. The median LOS in the outpatient group was 1.0 day (IQR 0.0–2.0 days) vs 3.5 days (IQR 1.3–7.0 days) in the inpatient group. A total of 98 bed days were saved using the device. Based on a cost of £25.70 per *Pneumostat* and £312 per bed day, the overall saving was £29,959.20. Patients who

required thoracic surgery were kept on the “inpatient waiting list” and could be admitted directly from home.

In the outpatient group, there was 1 drain site infection, 1 drain displacement and 1 patient failed to attend follow-up but returned a week later with a resolved pneumothorax.

Conclusion *Pneumostat* devices have recently been withdrawn from use in the United States by FDA decree. Although legal in the UK and supported by the MHRA, a Certificate of Medical Necessity is required to purchase the devices and there is no alternative “all-in-one” solution that attaches to a standard chest drain. Our data shows that this device is safe in uncomplicated PSP and confers significant financial savings. These benefits should not be overlooked and a consensus statement is required to ensure their continued use in the UK.

P179 THE EFFECTIVENESS OF CHEMICAL PLEURODESIS AGENTS IN SPONTANEOUS PNEUMOTHORAX: A SYSTEMATIC REVIEW

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Introduction and objectives Spontaneous Pneumothorax (SP) is a common pathology. Recurrence rates (RR) for Primary SP (PSP) are often quoted as approximately 30% (individual studies reporting anywhere between 17 and 49%), with less data available on Secondary SP (SSP) recurrence rates. Recurrence prevention at first episode remains controversial. International guidelines suggest pleurodesis for non-resolving air leak or recurrence prevention at second episode. There are numerous candidate agents for chemical pleurodesis.

This study aimed to comprehensively review the existing literature regarding chemical pleurodesis as a treatment modality.

Methods The systematic review methodology was based on the PRISMA approach and principles. Literature searches of multiple databases (PubMed, Embase, Medline, Web of Science, Cochrane Library) used combinations of terms including “spontaneous”, “pneumothorax”, “chemical”, “talc”, “tetracycline”, “minocycline”, “iodopovidone”, and “blood”. Abstracts were reviewed for relevance by two authors, who subsequently assessed and extracted data from the full articles.

Results Of 522 abstracts reviewed; 427 were excluded (e.g. case reports, letters, reviews, animal models or basic science articles); an additional 4 papers included via back-referencing. 99 full text papers were reviewed; 58 were excluded for the following

Abstract P179 Table 1 Detail of 8 randomised trials assessing efficacy of chemical pleurodesis

Study	Medical/Surgical	Intervention agent (# cases)	Control (# cases)	PSP/SSP (# cases)	Co-Intervention	Recurrence rate (agent/control)
Light (1990)	M	Tetracycline (113)	Drainage only (116)	46/183	Nil	25%/41%
Almind* (1989)	M	Talc (29) vs tetracycline (33)	Drainage only (34)	71/25	Thoracoscopy (no intervention)	8%/13%/36%
Tschopp (2002)	M	Talc (61)	Drainage only (47)	108/0	Thoracoscopy (no intervention)	5%/34%
Chen (2006)	S	Minocycline (103)	Saline (99)	202/0	VATS - bullectomy	2%/8%
Chung* (2007)	S	Talc and Dextrose (42) vs Dextrose alone (49)	Drainage only (50)	141/0	Thoraco-scopic bleb resection/cautery	2%/2%/6%
Agarwal (2011)	M	Iodopovidone (20)	Talc (15)	10/25	Nil	0%/0%
Alayouty (2011)	S	Minocycline (42)	Abrasion (40)	82/0	VATS -bullectomy	0%/5%
Chen (2013)	M	Minocycline (106)	Drainage only (108)	214/0	Nil	29%/49%

*Three arms of trial.

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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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.^{1,2} 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

- 1 Mekhaieel E, Kashyap R, Mullon JJ, *et al.* Infections associated with tunnelled indwelling pleural catheters in patients undergoing chemotherapy. *J Bronchology Interv Pulmonol.* 2013;**20**(4):299–303
- 2 Morel A, Mishra E, Medley L, *et al.* Chemotherapy should not be withheld from patients with an indwelling pleural catheter for malignant pleural effusion. *Thorax* 2011;**66**(5):448–9

Abstract P180 Table 1 Patient demographics, interventions and outcomes

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

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

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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