created to examine adolescence in detail (0–5,6–12,13–15,16–19,20–23,24–29 and ≥30 years). A longitudinal analysis (2008–2013) of weight change investigated potential explanatory variables between the sexes, such as diabetic status (CFRD) and FS.

Results Cross-sectional Boys 13–15 years had lower mean BMIP than girls (41.2 vs 50.5 p<0.001). Boys had a lower Z-score than girls for age 13–23 years. Mean BMI was significantly lower in females (21.9 vs 22.5 p<0.001). More females were underweight (BMI <19) than males (18.9% vs 14.0% p<0.001), this was specifically observed in ages≥24 years. Underweight individuals died younger than individuals with BMI ≥19 (29.3 years vs 36.0 years p=0.007). Lower weight was associated with more IVAbx days. Males had higher rates of FS (34.7% vs 28.9% in females p<0.001) specifically when≥16 years. These sex differences were not explained by differences in ethnicity, genotype or socio-economic status.

Longitudinal Boys had a greater fall in BMIP (8.3 vs 4.1 in females p=0.002). In adulthood, females had significantly less increase in BMI (0.20 vs 0.57 in males p<0.001). FEV_1 decline was greater in females (7.4% vs 5.9% in males p=0.0016) not receiving FS, with no difference in change in FEV_1 between the sexes in those receiving FS.

Conclusion From ≥16 years boys changed from having lower BMIP to *higher* mean BMI and lower rates of underweight status in adulthood. Higher rates of FS in adolescent boys might explain this. Lower weight is associated with earlier death and increased IVABx use. In individuals without FS females have a greater decline in FEV_1 than males, this is not seen in individuals on FS. This has not been previously shown and warrants further analysis.

Managing pleural disease: from intervention to conservation

S128 EXPLORING THE BEHAVIOUR OF MESOTHELIOMA IN A POST HOC ANALYSIS FROM THE TIME 1 TRIAL

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Introduction Malignant Pleural Mesothelioma (MPM) is the only malignancy which develops primarily in the pleural space and is a common cause of a malignant pleural effusion (MPE). MPE associated with MPM is managed similarly to any other malignancy, but it is unclear if the underlying mechanisms of fluid accumulation are the same and whether different treatment strategies should therefore be employed. The TIME 1 trial enrolled patients with MPE who underwent pleurodesis. This post hoc analysis compares the outcomes of patients with MPM to the rest of the trial population.

Abstract S128 Table 1

	Mesothelioma	Other	Significance
Pleurodesis Success	77/107 (72.0%)	142/173 (82.1%)	chi^2=3.97, 1 df, p=0.046
Trapped lung	19/91 (20.9%)	26/177 (14.7%)	chi^2=1.65, 1 df p=0.199
Mean total fluid drained (95% CI)	2208 (1917–2498)	2345 (2119–2570)	p=0.621
Mean change in CRP (Day 0–1)	58 (SD 43)	32 (SD 50)	p=<0.001
Mean change in WCC (Day 0–1)	2.53 (SD 2.83)	1.89 (SD 3.31)	p=0.13
Median enrolment pain VAS	4 (IQR 6)	5 (IQR 15)	p=0.016

SD=Standard Deviation, df=degrees of freedom, CI=confidence interval, and IQR=Interquartile Range

Methods 298 patients had available data on their final diagnosis. A number of different variables were compared, including pleurodesis success, systemic inflammation, the prevalence of trapped lung, total fluid volume drained and baseline pain Visual Analogue Score (VAS).

Results Of the 298 patients included in the analysis 110 patients had mesothelioma (36.9%). Post pleurodesis, MPM patients had a significantly greater rise in CRP than those with other underlying pathologies but had a significantly lower rate of successful pleurodesis. Patients with MPM had a lower pain VAS score on enrolment. There was no significant difference in the rates of trapped lung, the total volume of pleural fluid drained or the change in White Cell Count (WCC) between the groups.

Conclusion There are significant differences in the outcomes of patients with MPM and those with other MPE. Patients with MPM had a lower pleurodesis rate but a significantly greater change in C-reactive protein levels post pleurodesis, signifying a higher inflammatory response to pleurodesis, which has been assumed to associate with pleurodesis success. The mechanisms causing the increased inflammatory response in MPM are unclear. The basis for the lower rates of pleurodesis is unexplained, especially as there was no significant different in the rates of trapped lung. Patients with MPM had a lower level of pain VAS scores on enrolment but further analyses are needed to determine whether this is clinically relevant and reproducible. These data indicate that MPM behaves differently to other forms of MPE and treatment strategies should be tailored towards MPM as a separate entity.

S129 DOES INFLAMMATION PREDICT SUCCESSFUL PLEURODESIS? A POST HOC ANALYSIS FROM THE TIME 1 TRIAL

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Introduction Malignant pleural effusions are a common complication of advanced malignancy, have a poor prognosis and have a significant impact on quality of life. Treatment strategies include chest drain and pleurodesis, or insertion of an indwelling pleural catheter. Successful pleurodesis is thought to be due to the body's inflammatory response resulting in pleural symphysis. This post hoc analysis of data from the TIME 1 was conducted to address assess whether there is a correlation between the pleurodesis and a systemic inflammatory response.

Methods A total of 282 patients from the TIME 1 trial had data on pleurodesis success, which was defined as no further pleural procedures for up to 3 months after pleurodesis. Patients who had undergone thoracosopy and poudrage as well as those who had undergone chest drain with pleurodesis were included. Sterile talc was used in all patients. The difference in the white cell count (WCC) and C-reactive protein (CRP) levels was calculated between the day of pleurodesis (Day 0) and Day 1. The data are normally distributed thus independent t test was used for analysis. The CRP Day 0 and 1 data were not normally distributed, and therefore were log transformed to produce a normal distribution.

Results Two hundred and eighty two patients were included in the analysis with a mean age of 71 in both groups. 229 had a successful pleurodesis and 53 patients required a further pleural procedure on the ipsilateral side signifying failed pleurodesis. 193 patients had CRP levels and 220 patients had WCC levels recorded on both Day 0 and Day 1.

Patients who had a successful pleurodesis had a significantly greater rise in CRP than those who failed pleurodesis. There was no significant difference in the change in WCC between the groups. There was also no significant difference in Day 0 and Day 1 WCC or CRP levels between the two groups.

Conclusions This analysis demonstrates that systemic rise in CRP as an indicator of inflammation is a better predictor of pleurodesis success than the WCC. These data support the hypothesis that higher levels of inflammation are associated with pleurodesis success.

Abstract S129 Table 1

	Pleurodesis Success	Pleurodesis Failure	Significance
WCC Day 0	8.84 (SD 4.00, n=213)	9.12 (SD – 3.14, n=46)	p=0.582
WCC Day 1	11.14 (SD 3.78, n=191)	10.71 (SD 4.01, n=42)	p=0.525
WCC Change	2.30 (SD 3.07, n=180)	1.55 (SD 2.82, n=40)	p=0.140
CRP Day 0 (log)	1.46 (SD 0.58, n=181)	1.45 (SD 0.58, n=42)	p=0.900
CRP Day 1 (log)	1.92 (SD 0.34, n=179)	1.83 (SD 0.33, n=41)	p=0.123
CRP Change	47.81 (SD 52.08, n=154)	27.05 (SD 32.47, n=39)	p=0.003

SD=Standard Deviation and n=number of patients

S130 PRELIMINARY DATA SUPPORTING A 'DIRECT TO LAT' STRATEGY IN SELECTED PATIENTS WITH SUSPECTED MALIGNANT PLEURAL EFFUSION

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Introduction Malignant Pleural Effusion (MPE) requires a rapid and precise pathological diagnosis. However, the diagnostic yield of pleural fluid cytology is only 60%, varying by tumour type and is effectively 0% in Malignant Pleural Mesothelioma (MPM) in most centres. BTS guidelines recommend pleural fluid cytology prior to Local Anaesthetic Thoracoscopy (LAT), often resulting in pathway delay, without diagnostic value, in patients with symptomatic effusion. Pathway rationalisation requires data to support a 'direct to LAT' strategy, which may be appropriate in carefully selected patients.

Methods 466 patients with suspected MPE, recruited to the prospective, multi-centre DIAPHRAGM study (ISRCTN10079972) in Glasgow and South Manchester, were selected. All data was recorded prospectively except CT reports, which were retrieved retrospectively from electronic records. Cases were classified into 'benign' and 'malignant' CT groups (using previously published criteria (Hallifax *et al* 2014, Tsim *et al* 2016), and asbestos-exposed and non-exposed groups. The diagnostic performance of pleural cytology was compared based on these features.

Results 36/466 (8%) were excluded (non-contrast CT (n=15), non-contiguous CT (n=5), no definitive diagnosis (n=16)). In the remaining 430 cases, median age was 73 (IQR 66–80) years. 264/430 (61%) were diagnosed with MPE, of whom 107 (41%) had MPM. Median time from pleural aspiration to cytology report was 6 (4 -9) days. Median time from pleural aspiration to pleural biopsy was 20 (12 – 36) days. 189/430 (44%) were asbestos-exposed. 189/430 (44%) had a 'malignant' CT report. The diagnostic performance of pleural cytology based on combinations of these features is summarised in Table 1. In patients with MPE, the majority of patients with benign or non-diagnostic cytology had MPM (92/152 (61%)), particularly in asbestos-exposed patients (69/79 (87%)).

Conclusions Pleural cytology is frequently unhelpful in patients with MPE. The sensitivity and negative predictive value of pre-LAT aspiration cytology appears particularly low in patients with CT evidence of pleural tumour and a history of asbestos exposure, reflecting a higher prevalence of MPM. A 'direct to LAT' strategy, assuming pleural chemistry and microbiology suggest a sterile exudate, may be appropriate in these cases. However, a prospective study would be required to validate such an approach.

Abstract S130 Table 1 The diagnostic performance of pleural fluid cytology in 430 patients with suspected pleural malignancy. 390/430 (91%) had pleural fluid cytology performed. Prevalence of pleural malignancy in this cohort was 61% (n=264). 37/390 (9%) had cleady benign effusions based on pleural fluid biochemistry and microbiology results and are excluded from the analyses below

	Sensitivity (95% CI)	NPV (95% CI)	MPE Prevalence (%, n=)	MPM Prevalence (%, n=)	Benign or non-diagnostic cytology in MPE (%, n=)
Malignant CT report and Asbestos-exposed (n=64)	18% (11 - 30%)	8% (3 - 18%)	83% (n=53)	64% (n=41)	84% (n=49)
Malignant CT report and no asbestos exposure (n=95)	18% (11 - 30%)	42% (32 - 52%)	88% (n=84)	15% (n=14)	58% (n=49)
Benign CT report and Asbestos-exposed (n=83)	67% (56 - 76%)	23% (13 - 38%)	47% (n=39)	34% (n=28)	77% (n=30)
Benign CT report and no asbestos exposure (n=111)	74% (65 - 82%)	61% (49 - 72%)	56% (n=62)	8% (n=9)	39% (n=24)

CI; Confidence Interval, NPV; Negative Predictive Value, MPE; Malignant Pleural Effusion, MPM; Malignant Pleural Mesothelioma