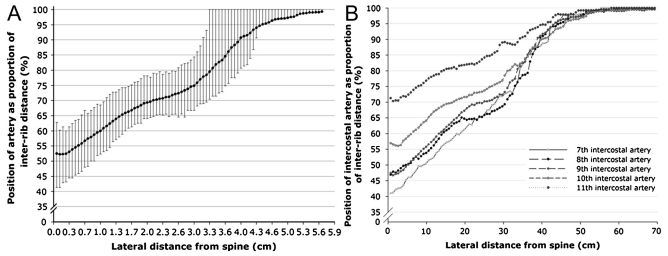
variability of the artery were described and then analysed for association with clinical factors using a random effects regression model.
Results 298 arteries were analysed from 48 patients (mean age 60 years). The mean lateral distance from the spine over which the artery was exposed within the intercostal space ('unsafe artery length') was 39 mm with wide variability (SD=10 mm, 10th to 90th centile 28 mm to 51 mm, Abstract P64 Figure 1A). At 3 cm lateral distance from the spine 16.6% of arteries were shielded by the superior rib, compared to 96.6% at 6 cm. Unsafe artery length was not associated with age, sex, rib space or side. Using regression modelling, variability of arterial position (as SD and coefficient of variation) was significantly associated with age (coeff 0.91, p<0.001) and rib space number (coeff −2.60, p<0.001) (Abstract P64 Figure 1B). Variability of arterial position was strongly negatively correlated with lateral distance from the spine (Pearson's −0.77, p<0.001).



Abstract P64 Figure 1 (A). Position of artery as proportion of inter-rib distance (%). (B). Position of intercostal artery as proportion of inter-rib distance (%).

Conclusions The intercostal artery is exposed within the intercostal space in the first 6 cm lateral to the spine; variability of its vertical position is greater in older patients and more cephalad rib spaces. This implies that pleural interventions within 6 cm lateral to the spine should be conducted with caution and that the risk of intercostal artery laceration is potentially higher in older patients and more cephalad rib spaces.

P65 IS SERUM N-TERMINAL PRO B TYPE NATRIURETIC PEPTIDE (NT-PROBNP) MEASUREMENT USEFUL IN THE INVESTIGATION OF UNILATERAL PLEURAL EFFUSIONS?—A PROSPECTIVE OBSERVATIONAL STUDY

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Measurement of serum NT-proBNP has been proposed in the investigation of pleural effusions, particularly in the diagnosis of cardiac failure in those misclassified as exudates by Light's criteria. Studies have reported excellent diagnostic accuracy for the test but have included both bilateral and unilateral effusions and applied short follow-up periods. We prospectively examined the diagnostic utility of serum NT-proBNP in a consecutive series of unilateral pleural effusions with robust follow-up and diagnostic criteria.
Method Consecutive patients presenting to a UK teaching hospital with an undiagnosed unilateral pleural effusion underwent clinical assessment including CXR, ECG, echocardiogram, thoracentesis (and CT when appropriate). Light's criteria were applied. Serum NT-proBNP was measured using point of care ELISA. Patients were followed up to histological/microbiological diagnosis, radiographic resolution or 12 months. Echocardiograms were double reported and diagnosis determined independently by two respiratory consultants—all blind to NT-proBNP results.
Results 118 patients. Median age 74 (42–95). 39 in patients, 79 outpatients. 18 transudates, 92 exudates. 30 large, 66 moderate, 22 small. Diagnoses: primary cardiac cause (PCC) 20/118, Malignant 57/118, PE 4/118, Non-cardiac transudate 3/118, other benign cause 30/118. The ROC curve for NT-proBNP discriminating effusions of PCC gave an AUC of 0.845 (0.774–0.934). At cut-off of age and sex adjusted 97.5th centile (healthy population) NT-proBNP had sensitivity 100%, Specificity 53%, PPV 30% and NPV 100% and all four cardiac exudates were correctly diagnosed. At an optimum cut-off of 1500 pg/ml—sensitivity 75%, specificity 76%, PPV 38% and NPV 94%. Co-morbid cardiac disease was common in patients without a PCC for effusion with 70% having significant abnormalities on echocardiogram but cardiac disease was considered to be contributing to effusion in only 9/98 of this group.
Conclusion The excellent negative predictive value of NT-proBNP, particularly at an age and sex adjusted cut-off level gives the test utility to rule out a primarily cardiac cause in selected cases of unilateral pleural effusion. Co-morbid cardiac disease and associated NT-proBNP elevation is very common in patients with a non-cardiac origin of pleural effusion such that a positive test at baseline should not alter the initial investigation pathway, particularly amongst pleural exudates.

P66 HISTONE DEACETYLASE INHIBITOR CBHA ATTENUATES THE EXPRESSION OF PLASMINOGEN ACTIVATOR INHIBITOR-1 IN HUMAN PLEURAL MESOTHELIAL CELLS

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Background Plasminogen activator inhibitor-1 (PAI-1), primarily up-regulated by transforming growth factor (TGF)-β, is essential for development of fibrosis. Histone deacetylases (HDACs) have been shown to modulate gene expression and fibrogenesis in various tissues. However, the implications of HDAC in PAI-1 expression and pleural fibrosis remain unclear. We examined the effects of *m*-carboxycinnamic acid bis-hydroxamide (CBHA), a hybrid-polar HDAC inhibitor, on PAI-1 expression in a human pleural mesothelial cell line (MeT-5A).
Methods MeT-5A cells were treated with TGF-β1 (10 ng/ml) in the presence or absence of CBHA (0.2–1 μM). The expression and stability of PAI-1 mRNA and protein, PAI-1 promoter activity, activation of Smad signaling, and protein–protein interactions of Smads with transcriptional cofactors Sp1 and coactivator p300 were assayed using the methods of Western blotting, reverse transcription-polymerase chain reaction, transient transfection and luciferase activity assay, immunoflurescence staining and immunoprecipitation, respectively.
Results CBHA significantly inhibited TGF-β1-induced PAI-1 mRNA and protein expression, and attenuated PAI-1 promoter activity in MeT-5A cells. CBHA abrogated TGF-β1-induced Smad4 nuclear translocation, but not Smad2/3 activation. Furthermore, the TGF-β1-induced association of Smad4 with p300, but not with Sp1, was disrupted by CBHA. Alternatively, CBHA accelerated PAI-1 mRNA degradation, possibly through suppression of the mRNA stabilizing protein nucleolin (Abstract P66 Figure 1).