

P124 EFFUSION SIZE ON THE CHEST RADIOGRAPH AT DAY 7 POST-PLEURAL DRAINAGE IS A GOOD PREDICTOR OF SIZE AT 3 MONTHS, REGARDLESS OF INITIAL INTRAPLEURAL THERAPY

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Introduction Drainage of infection pleural fluid is essential in improving patient outcomes. The MIST-2 Trial (NEJM 2011) demonstrated intrapleural tissue plasminogen activator (t-PA) and DNase therapy improves drainage in patients with pleural infection from Day 1 to 7 compared to placebo. However, there is no evidence assessing whether this difference is sustained at 3 months. Methodology used in the MIST-2 trial demonstrated that a digital chest radiograph measurement strategy was an effective measurement of pleural fluid volume and correlated closely with computed tomography scanning in estimating effusion size.

Aims

1. To determine whether intrapleural treatment with t-PA, DNase, or both, showed a sustained significant difference in effusion size at 3 months.
2. To assess predictors of residual pleural shadowing 3 months post treatment.

Methods 132/193 (68%) patients in the MIST-2 trial had assessable chest radiographs at 3 months (remaining patients were lost to follow-up or died). Effusion size was measured as a percentage of the hemithorax occupied on digital radiograph image (JPEG format). Each image was analysed independently by a medical student and respiratory specialist. Where the difference in estimates exceeded 2%, the radiographs were reassessed together to generate consensus. Analysis was blind to treatment arm.

Results There was no significant difference between placebo and any treatment group in the 3 month radiology outcome. The 3 month effusion size was positively correlated with that at Day 7 (Pearsons 0.27, $p=0.003$). Neither Day 1 effusion size, nor the difference between Day 1 to 7 was significantly correlated with 3 month outcome. Linear regression analysis demonstrated significant correlation for Day 7 effusion size with 3 months size ($p=0.004$), but non-significance by treatment arm ($p=0.071$).

Conclusions In those that survive and have a chest radiograph at 3 months, there is no difference in the radiological outcome at 3 months between treatment groups on the basis of treatments given, including surgical intervention. However, the appearance at day 7 is significantly correlated with the 3 month chest radiograph. Further statistical modelling of this data is now required to assess the relative contributions of intrapleural interventions and surgery in those that survive to 3 months.

P125 DIGITAL MEASUREMENT STRATEGY IS ROBUST IN NON-EXPERT HANDS IN MEASURING CLINICALLY RELEVANT EFFUSIONS ON CHEST RADIOGRAPH

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Introduction The primary outcome of most studies investigating pleural infection treatment is the pleural effusion volume change between two defined time points. This may be performed using thoracic computed tomography (CT) scans, but this method is costly and involves increased radiation to the patient. Data from the MIST-2 trial demonstrates that a digital chest radiograph measurement strategy was effective and correlated well with CT scanning.

Aim To assess deviation of novice scorers from an expert scorer when measuring pleural effusion size on chest radiographs using the digital scoring system.

Methods 132 chest radiograph digital images (JPEG format) were obtained from the 3 month follow-up of the MIST-2 trial. The optimal method was observer-estimated position of diaphragm and mediastinum with mediastinum discounted from the measurement. For each image, the area occupied by the pleural collection and hemithorax was manually drawn as a polyhedron, permitting calculation of percentage area occupied by effusion. Medical students acted as novice scorers and a respiratory specialist was the expert scorer and both independently scored the images.

Results Clinically significant effusions were defined as those over 2% of the hemithorax area. 73 of 132 were rated by the expert as not clinically significant. Of the remaining 59, there was >2% difference between novice and expert scores in 38 cases. Novice and expert then reassessed these radiographs together to agree a consensus. Within the subgroup of 59 clinically significant effusions, the mean difference between the novice and expert scores was -0.10 (95% CI -3.2 to 3.0 , $p=0.95$). Comparison of novice and expert respectively to the final consensus scores revealed a significant mean difference in the novice scores of 2.0 (95% CI 0.02 to 4.0 , $p=0.048$, expert: -0.11 , 95% CI -1.85 to 1.63 , $p=0.90$).

Conclusions Novice scorers have a tendency to overestimate effusion size. However, where there is a clinically significant (>2% of hemithorax) effusion, scores between novice and expert correlate well. This implies that the digital measurement strategy is robust in non-expert hands in measuring clinically relevant effusions. This digital chest radiograph assessment tool is therefore a potential simple outcome for use in future studies assessing pleural drainage.

P126 MEDICAL THORACOSCOPY EXPERIENCE IN A DISTRICT GENERAL HOSPITAL

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Background In patients with pleural effusion, even after extensive diagnostic evaluation, the aetiology often remains unclear. The diagnostic yield from simple pleural fluid aspiration and blind pleural biopsy is very limited. Medical thoracoscopy can be performed under controlled sedation and enables direct visualisation of the pleural surfaces to obtain targeted sampling, to improve the diagnostic yield.¹

Aim To review local practise and experience of medical thoracoscopy.

Methods Retrospective analysis of 112 cases over a period of four years was performed to look at the diagnostic yield. We compared simple pleural aspiration with thoracoscopy and examined the relationship between the computed tomography (CT) appearances and histology results.

Results Of the 112 cases, 83 (74%) were male and 27 (26%) female. The age range was 32 to 90 years (mean = 69). No major adverse events were reported following the procedure. Two patients had the procedure performed twice due to recurrence. One sample was lost. The results for the remaining 111 patients are presented in the table.

Of the 69 patients who were diagnosed with malignancy, pleural fluid aspiration was positive in only 29 (43%) cases. CT evidence of pleural thickening was noted in only 28 (41%) of these cases, all of which turned to be malignant.

Conclusions

1. Our study reiterates the fact that medical thoracoscopy has a better diagnostic yield than simple pleural aspiration and is a safe procedure that can be performed safely by chest physicians in a DGH setting.