Cameron R, Davies HR. Northern Sydney Central Coast Area Health Service, NSW, Australia. Intra-pleural fibrinolytic therapy versus conservative management in the treatment of adult parapneumonic effusions and empyema. Cochrane Database Syst Rev. 2008 Apr 16;(2): CD002312. Update of Cochrane Database Syst Rev. 2004;(2): CD002312.

BACKGROUND: Pleural effusions and empyema may complicate lower respiratory tract infections. Treatment of these collections of pus includes surgical drainage and the use of intra-pleural fibrinolysis to break down fibrin bands that may cause loculation.

OBJECTIVES: To conduct a systematic review of the benefit of adding intrapleural fibrinolytic therapy to intercostal tube drainage in the treatment of complicated para pneumonic effusions and empyema to reduce mortality or the need for subsequent surgical debridement of the pleural space.

SEARCH STRATEGY: We searched the Cochrane Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE. Trial authors were contacted for further information and details regarding the possibility of unpublished trials was requested. The most recent search was conducted in November 2006.

SELECTION CRITERIA: All studies in the review were randomised controlled trials in adult patients with post-pneumonic empyema or complicated parapneumonic effusions who had not had prior surgical intervention or trauma. The intervention was an intrapleural fibrinolytic agent (streptokinase or urokinase) via an intercostal chest drain (ICD) versus control, or a comparison of the two agents.

DATA COLLECTION AND ANALYSIS: Two review authors independently extracted data . Study authors were contacted for further information.

MAIN RESULTS: Seven studies met the eligibility criteria of the review, recruiting 761 participants. The only consistent end points in all trials were treatment failure, as gauged by the requirement for additional intervention including surgery or death. In studies where patients had either loculation and empyema, there was no significant difference in the risk of death with fibrinolytics (RR 1.08; 95% CI 0.69 to 1.68). When treatment failure was considered as surgical intervention, fibrinolytics reduced the risk of this outcome (RR 0.63; 95% CI 0.46 to 0.85), but there is discordance between earlier positive studies and the more recent negative study by Maskell.

AUTHORS' CONCLUSIONS: Intrapleural fibrinolytic therapy confers significant benefit in reducing the requirement for surgical intervention for patients in the early studies included in this review but not in the more recently published Maskell study. The reasons for this difference are uncertain. Separate subgroup analysis of proven loculated/septated effusions from the available data in our meta-analysis suggests a potential overall treatment benefit with fibrinolytics, but these results should be treated with caution as the data are incomplete and the benefit is not significant in the subgroup of high quality trials (Cochrane Grade A). Intrapleural fibrinolytics have not been shown to significantly increase adverse events, but the confidence interval is too wide to firmly exclude this possibility.

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