The microbiology of pleural infection in adults: a systematic review

Maged Hassan, Tamsin Cargill, Elinor Harriss, Rachelle Asciak, Rachel M. Mercer, Eihab O. Bedawi, David J. McCracken, Ioannis Psallidas, John P. Corcoran and Najib M. Rahman


Correspondence: Maged Hassan, Oxford Pleural Unit and Oxford Respiratory Trials Unit, Churchill Hospital, Roosevelt Drive, OX3 7LE, Oxford, UK. E-mail: magedhmff@gmail.com

Staphylococcus aureus is the predominant cause of pleural infection in adults with a temporal rise in rate of isolation of the drug-resistant organism. There are variations in the microbiology according to geographical location and setting of infection. http://bit.ly/31WnpI0


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ABSTRACT

Background and objectives: Pleural infection is a major cause of morbidity and mortality among adults. Identification of the offending organism is key to appropriate antimicrobial therapy. It is not known whether the microbiological pattern of pleural infection is variable temporally or geographically. This systematic review aimed to investigate available literature to understand the worldwide pattern of microbiology and the factors that might affect such pattern.

Data sources and eligibility criteria: Ovid MEDLINE and Embase were searched between 2000 and 2018 for publications that reported on the microbiology of pleural infection in adults. Both observational and interventional studies were included. Studies were excluded if the main focus of the report was paediatric population, tuberculous empyema or post-operative empyema.

Study appraisal and synthesis methods: Studies of ≥20 patients with clear reporting of microbial isolates were included. The numbers of isolates of each specific organism/group were collated from the included studies. Besides the overall presentation of data, subgroup analyses by geographical distribution, infection setting (community versus hospital) and time of the report were performed.

Results: From 20980 reports returned by the initial search, 75 articles reporting on 10241 patients were included in the data synthesis. The most common organism reported worldwide was Staphylococcus aureus. Geographically, pneumococci and viridans streptococci were the most commonly reported isolates from tropical and temperate regions, respectively. The microbiological pattern was considerably different between community- and hospital-acquired infections, where more Gram-negative and drug-resistant isolates were reported in the hospital-acquired infections. The main limitations of this systematic review were the heterogeneity in the method of reporting of certain bacteria and the predominance of reports from Europe and South East Asia.

Conclusions: In pleural infection, the geographical location and the setting of infection have considerable bearing on the expected causative organisms. This should be reflected in the choice of empirical antimicrobial treatment.

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