



An audit of inpatient management of community-acquired pneumonia in Oman: A comparison with regional clinical guidelines

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Summary

Objective: Community-acquired pneumonia (CAP) is a major cause of morbidity and mortality worldwide. Herein, we present the findings from an audit of CAP management at a tertiary hospital in Oman. The main objective was to evaluate the quality of care given to patients and compare it with the standards in the Gulf Cooperation Council (GCC) CAP guidelines.

Methods: A retrospective case study of all patients admitted with CAP from June 2006 to September 2008 examined the adherence to standards for the diagnosis, investigation, and management of CAP, including the documentation of illness severity.

Results: The case notes of 342 patients were reviewed. Of these, 170 patients were excluded from the study, and 172 patients met the diagnostic criteria for inclusion. A CURB-65 severity score was documented for only 4 (2.3%) patients, and a smoking history was documented for 56 (32.6%) patients. Although 17 different antibiotic regimens were used, 115 (67%) patients received co-amoxiclav and clarithromycin, which is the standard of care. Additionally, 139 (81%) patients received their first dose of antibiotics within four hours of hospital admission. There was no documentation of offering influenza or pneumococcal vaccine to high risk patients. **Conclusion:** The clinical coding of CAP diagnosis was poor. There was very poor adherence to the CAP severity assessment and the provision of preventive measures

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upon hospital discharge. The development and implementation of a local hospital-based integrated care pathway may lead to more successful implementation of the guidelines.

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Introduction

Community-acquired pneumonia (CAP) is a major cause of morbidity and mortality worldwide and is managed by different disciplines in a heterogeneous fashion. Wide variation exists in the management of patients hospitalized with CAP, despite the development of numerous national and specialist society clinical guidelines over the last 15 years [1]. The appropriate management of CAP includes the accurate classification of disease severity to indicate the optimal intervention [2]. The implementation of management guidelines and their maintained adherence should reduce morbidity, mortality and health care costs [3,4]. There is evidence that guidelines can direct and standardize disease management, but the effects on disease outcome are less measurable [5].

The adherence to guidelines for CAP management or to other antibiotic policies by hospital physicians has been rarely evaluated in the Middle East, and no data are available from Oman or other Gulf Cooperation Council (GCC) countries. The guidelines for CAP management have been developed for the GCC area by a large regional/international multidisciplinary Working Group (GCC CAPWG), which collaborated in a full review of the current international and local data to inform the publication and promotion of evidence-based graded recommendations suitable for the region [6–10].

We conducted an audit of the quality of care for CAP in the acute medical admission unit of a tertiary hospital in Oman and compared the data to the GCC CAP guideline standards. The study focused primarily on the illness severity scoring at the time of admission, the proportion of patients receiving appropriate antibiotics within four hours of admission to the hospital, and the preventive measures instituted for patients at the time of hospital discharge.

Methods

The Royal Hospital (RH) is a 650 bed tertiary care hospital serving the Muscat area and a referral hospital for patients from all over Oman. A

retrospective case study included all patients with a discharge diagnosis of pneumonia from June 2006 to September 2008. During this period, the GCC CAP guidelines were presented several times at the Department of Medicine biweekly meetings, which are attended by all interns, residents in training and consultants.

Patients were identified from the computerized activity registers of the hospital, and all patients with a discharge code of pneumonia (ICD 10 codes J15.9, J16 and J18) were included. The hospital case notes were fully computerized and reviewed for all patients. Those found not to have CAP were excluded from further analysis. The diagnosis of CAP was based on the definition of pneumonias given in the GCC guidelines, which relies on the presence of select clinical features (e.g., cough, fever, sputum production, and pleuritic chest pain) and is supported by imaging of the lung, usually by chest radiography [6]. Pneumonia was defined as being community acquired if present at the time of admission to the hospital or within 48 h of admission, without evidence of admission to an acute care hospital for two or more days within 90 days prior to the infection.

Patients with aspiration pneumonia, exacerbations of chronic pulmonary diseases or with hospital-acquired pneumonia were excluded, as were immunosuppressed patients and patients with sickle-cell disease. Patients who were later diagnosed with pulmonary tuberculosis were also excluded.

A standard form was used to record the relevant data for eligible patients. The collected data items included the following: basic demographic information; the components of severity scoring; the blood, sputum and radiological investigations performed and their timing; the antibiotics prescribed and their route of administration and timing; and follow up after discharge and the preventive measures advised prior to discharge, i.e., the recommendations for immunization against influenza or pneumococcal diseases.

In the GCC guidelines, illness severity is assessed using the CURB-65 score [7] as “core” and “additional” adverse prognostic factors, the latter based on the presence of hypoxemia and/or

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