2009/10 Adult Community Acquired Pneumonia Audit Summary Report

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Thank you to everyone who participated in the first BTS-wide audit of the management of Community Acquired Pneumonia (CAP) in adults. The audit captured data relating to acutely ill medical patients admitted to hospitals in the UK within the period 1 December 2009 and 31 January 2010. There were a total of 2,749 submissions from 64 institutions spread throughout the UK, making this the largest BTS Audit to date, and one of the largest audits of CAP anywhere.

The size of this audit means that the data are both meaningful and representative of what happens in practice. In this Report, the main results of the audit are discussed together with areas for potential improvement. A presentation of the Results will also be given at the BTS Winter Meeting 2010.

Patient profile and outcome

The mean age of cases was 71 years and over half (52%) were female. The 2 commonest comorbid illnesses were chronic heart disease (23%), excluding hypertension and COPD (22%).

Based on the CURB65 score, 40% of patients had low severity CAP (score 0 to 1), 30% moderate severity CAP (score 2) and 30% high severity CAP (score 3 to 5).

The average length of stay was 5 days and critical care admission was required in 7% (n=193). Critical care advice was received in 102 of 316 cases with CURB65 scores of 4 or 5. Overall, 582 (21.2%) patients died while an in-patient. Readmission rate within 30 days of discharge was 8.3%.

Interpretation:

- CAP mostly affects older persons, although a third are under 65 years old.
- The proportions of patients with low, moderate and high severity disease are similar to findings from cohort studies.
- The relatively high mortality observed in this audit (21%) is greater than that reported by most cohort studies. Analysis is being undertaken to examine this further.
- The readmission rate is close to the national average for all-cause admissions.

Processes of care

Fifty-two percent of patients received the first dose of antibiotic < 4 hours after admission. A further 18% received the first dose between 4 and 6 hours after admission while 20% received antibiotics ≥ 8 hours after admission (Figure 1).

In contrast, the time interval from hospital admission to a chest x-ray was generally short: 41% < 2 hours, 43% 2 to 4 hours, 11% beyond 6 hours.

In 74% of cases, the CXR was reviewed before antibiotics were given. In 21% of cases (n=592), the interval between CXR and first dose of antibiotics was > 4 hours.

Interpretation:

- A first dose of antibiotics is administered in a substantial proportion of patients (~25%) before confirmation of the diagnosis of CAP (ie. before the CXR is reviewed).
- A substantial minority of patients are waiting a long time before receiving the first dose of antibiotics following hospital admission (16.5% waited > 8 hours).
- The delay to administration of antibiotics does not appear to be due to a delay in obtaining a CXR in most cases. It is probably related to a delay in review and interpretation of the CXR and processes related to prescribing and administration of antibiotic upon x-ray confirmation of the diagnosis of CAP.

Use of antibiotics

Antibiotics were given in accordance with local CAP guidelines in only 54% of cases.

Overall, initial empirical antibiotics were given intravenously (IV) in 77% (n=2031) of cases.

A beta-lactam + macrolide combination was given in 53% of cases with low severity CAP, 54% with moderate severity CAP and 59% with high severity CAP.

A quinolone antibiotic was given in less than 3% of cases overall.

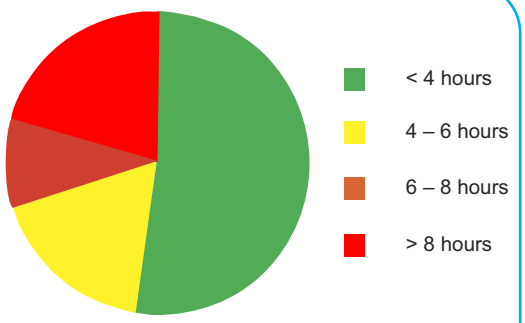

Figure 1: Interval between hospital admission and first antibiotic: proportions of patients treated (based on 2,542 cases)

Interpretation:

- Adherence to local CAP guidelines regarding antibiotic use was low, despite evidence that adherence to CAP guidelines is related to improved outcomes.
- The proportion given intravenous (IV) antibiotics was higher than might be expected based on disease severity alone.
- Based on BTS Guidelines recommendations, there was an overuse of combination antibiotics in patients with low severity CAP.
- In patients with moderate to high severity CAP, there was an underuse of combination antibiotics.

Suggested areas for improvement in management

Aim – To potentially improve outcome:

1) Increase adherence to local CAP guidelines.2) Reduce delay from hospital admission to first dose of antibiotics.

3) Increase the proportion with high severity CAP receiving combination antibiotics.

Aim – To reduce inappropriate antibiotic use:

4) Reduce the proportion receiving antibiotics before the diagnosis is confirmed.

5) Reduce unnecessary use of parenteral (IV) and combination antibiotics for low severity CAP.

Summary

This audit has provided unique and representative data on how CAP is managed in hospital in the UK. Most importantly, the results should be of use to local care pathway planning, especially to those units that participated in the audit and have local data on which to base improvements.

In addition, the audit has generated some questions that will need to be answered by further research. As the audit was focused on patients who were seen and treated following their arrival in hospital, there was no information on the duration of these patients' symptoms, nor of any treatment administered pre-hospital. Both of these factors may have influenced clinical outcomes.

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