An audit of the use of urinary antigen testing in patients with severe community acquired pneumonia

Susan Lapthorne, Rachel Barry, Niall O'Mara, Robert Brennan, John Benson, Declan Spillane, Marianne Nolan, Michael B. Prentice

Department of Clinical Microbiology, Cork University Hospital

Background

The British Thoracic Society (BTS) and the National Institute for Health and Care Excellence (NICE) recommend that patients who are admitted to hospital with moderate to severe community acquired pneumonia (CAP) should have *Streptococcus pneumoniae* and *Legionella* urinary antigens tested.

Aim

The aim of this audit was to examine testing of pneumococcal urinary antigen (PUA) and legionella urinary antigen (LUA) in patients admitted to the intensive care unit (ICU) with severe CAP, in Cork University Hospital.

Methods

Medical records for ICU admissions during January and February 2020 were audited to determine if PUA and LUA had been sent for patients with severe CAP. The positivity rate was calculated and results were compared to the BTS and NICE standards.

Results

Twenty-two patients were admitted to ICU with severe CAP

- PUA was tested in 50% (n=11) of patients, with a positivity rate of 18% (n=2)
- LUA was tested in 27% (n=6) of patients, with no positive results

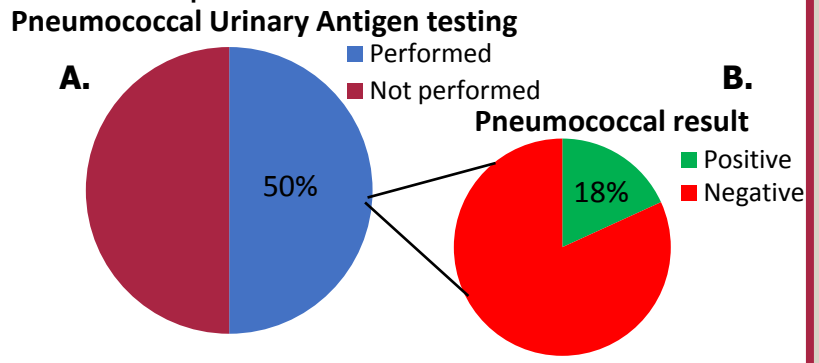

Fig 1. Percentage of patients in ICU with CAP that had pneumococcal urinary antigen testing (A) and the percentage of positive results (B).

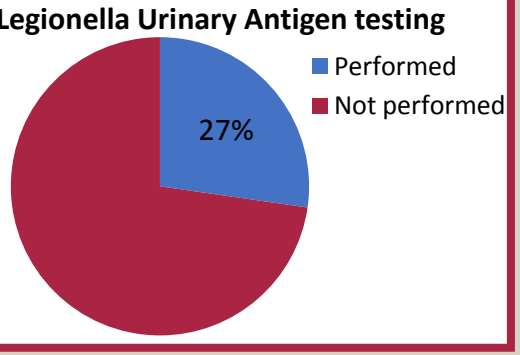

Fig 2. Percentage of patients in ICU with CAP that had legionella urinary antigen testing.

...Results continued

Blood cultures were drawn on admission for 90% (n=20) of patients

- Two patents had positive blood cultures (both coagulase negative staphylococci)

Sputum cultures were taken for 59% (n=13) of patients

- Seven patents had positive sputum cultures (Yeast (n=6), *Haemophilus influenzae* (n=1), *Pseudomonas aeruginosa* (n=1))

Discussion

This audit showed that our institution was falling below the standard of care set out by BTS and NICE for management of patients with severe CAP.

Although the yield was low, there were positive results, which guided antibiotic management.

Of note, both patients with positive PUA had blood cultures and sputa that were negative for *S. pneumoniae* – highlighting the importance of urinary antigen testing in culture-negative CAP.