ARE RESISTANCE RATES AMONG BLOODSTREAM ISOLATES A GOOD PROXY FOR OTHER INFECTIONS? ANALYSIS FROM THE BSAC RESISTANCE SURVEILLANCE PROGRAMME

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INTRODUCTION

• Bacteremia represents an invasive infection, whereas bacteria isolated from other sources (e.g. urine, sputum) may represent colonisation.
• Resistance rates of isolates from bloodstream infections (BSI) are often used as a general measure of resistance prevalence but may not represent other infection types.
• Access to representative resistance rates in different infection types is important in guiding appropriate antibiotic therapy.
• Successful clinical outcome of an infection requires appropriate antibiotic treatment and source control; however, in the management of pneumonia, source control is rarely possible, making antibiotics the mainstay of treatment.
• We compared resistance rates between BSI and lower respiratory tract infection (LRTI) for isolates collected in a single season from the BSAC Resistance Surveillance Programme.

METHODS

• 24 laboratories collected isolates, to a fixed annual quota per species group.
• BSI isolates were collected during calendar 2018.
• LRTI isolates were collected between Oct 2017 - Sept 2018; S. pneumoniae were collected from community-onset (CO-) LRTI, whereas Enterobacterales, P. aeruginosa and S. aureus were collected from hospital-onset (HO-) LRTI.
• MICs were determined centrally by BSAC agar dilution. EUCAST breakpoints (v9.0) were used.
• Serotyping was completed for S. pneumoniae.

RESULTS

• 2788 isolates were reviewed (Table 1).
• S. pneumoniae and P. aeruginosa from LRTI had higher resistance rates than BSI isolates (Fig. 1).
• S. pneumoniae: five LRTI isolates were resistant to ceftriaxone.
• P. aeruginosa: two BSI isolates were resistant to ceftazidime/avibactam; no isolates were resistant to colistin or cefotaxime/tazobactam.
• Enterobacterales and S. aureus from BSI and LRTI had similar resistance rates (Fig. 2) except:
  • A higher rate of amoxicillin/clavulanate resistance among LRTI E. coli (61% vs. 41%).
  • A higher rate of colistin resistance among BSI E. cloacae (12% vs. 7%).
• S. aureus: No resistance to ceftriaxone or cefotaxime.
• Gram-negatives: resistance to ceftazidime/avibactam, and cefotaxime/tazobactam was low (<1%).
• Enterobacterales: 12-19% resistance to cefotaxime.

REFERENCES

2) www.bsacsurv.org.uk, incl. sponsor list.
4) http://www.eucast.org/clinical_breakpoints.

CONCLUSIONS

• Rates of resistance among bloodstream isolates are a reasonable proxy for most antibiotics for Enterobacterales and S. aureus.
• Among S. pneumoniae and P. aeruginosa resistance to all agents was consistently more prevalent in LRTI.
• When using susceptibility data to guide appropriate antibiotic prescribing, linking antibiotic resistance trends to the specific clinical indication and/or site of infection should be considered.
• Relying on surveillance data from bacteremia reports alone could lead to inappropriate/sub-optimal treatment for some infection types and may be of particular importance for hospital-acquired pneumonia.

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