ABSTRACT

This is an interim analysis of a multicenter, quasi-experimental study designed to compare clinical data, before and after implementation of AXDX, to evaluate the impact of AXDX on patients with bacteremia.

METHODS

Methods: This multicenter, quasi-experimental study compared clinical data, before and after implementation of AXDX, to evaluate the impact of AXDX on patients with bacteremia. Laboratory and clinical data from eligible hospitalized patients with a bacteremia that was tested on AXDX (post-AXDX) were compared to a cohort of patients with bacteremia that underwent testing by standard of care (pre-AXDX). An interim analysis of patients with GN from 2 centers was performed. Pre-AXDX ID/AST methods were Vitek 2, MALDI-TOF MS, and BD Phoenix (Phoenix™ at hospital A, and MALDI-TOF MS and VITEK 2 at hospital B. Both hospitals had active antimicrobial stewardship programs throughout the study period.

RESULTS

A total of 233 (115 pre-AXDX, 118 post-AXDX) patients with GN were included in the interim analysis. Demographics, Charlson Comorbidity Score, Pitt Bacteremia Score (PBS), and source of infection were comparable between arms. Median time to optimal antibiotic therapy (TTOT) was 44.0 hours (95% confidence interval; 35.6–61.9) in the pre-AXDX arm and 31.3 hours (95% CI; 27.7–43.0, P = 0.13) in the post-AXDX arm. Thirty-day mortality, post-blood culture length of stay, and 30-day hospital readmission were comparable between arms. In an acute severity of illness analysis, moderately ill patients (PBS ≥ 2; 48% of patients) at the time of bacteremia had greater reductions in time to optimal therapy in post-AXDX (28.1h) as compared with pre-AXDX (57.3h; P = 0.003). Whereas, TTOT did not differ between arms for patients with mild (PBS<2; 30%) and severe (PBS≥21%) acute illness.

Source of Bacteremia

- 250 patients with GN evaluated; 233 included (17 excluded)
- Exclusions were: deceased ≤48h of BC positivity (n=10), discharged at time of BC positivity (n=12), and positive blood culture deemed not to be a contaminant (n=30)
- Exclusions were: deceased ≤48h of BC positivity (n=10), discharged at time of BC positivity (n=12), and positive blood culture deemed not to be a contaminant (n=30)
- Time to optimal therapy stratified by Pitt Bacteremia Score
- MILD (0-1) n=43
- MODERATE (2-3) n=71
- SEVERE (≥4) n=31

RESULTS

- Time to optimal therapy after blood culture positivity (n=145)
- 30-day mortality, n (%)
- Vasopressor use, n (%)
- ICU admission, n (%)

CONCLUSIONS

- Based on the interim analysis of patients with gram-negative bacteremia, acute severity of illness appears to be associated with the effect of AXDX on TTOT, with the biggest impact observed in moderately ill patients.
- A larger cohort is necessary to evaluate the impact of AXDX on clinical outcomes. Further patient enrollment is ongoing.

REFERENCES