Anti-infective therapy in bloodstream infections – current data of the Thuringian registry on blood culture diagnostics AlertsNet

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INTRODUCTION

- Population-based surveillance has been recognized as an optimal means for monitoring treatment decisions in real-life scenarios

- AlertsNet is a population-based project on bloodstream infections conducted in the German Federal state of Thuringia; it started data collection in 2014 (population-based data will be achieved within the next two years)

- Hospitals and microbiological labs are connected within an electronic registry for immediate integration and evaluation of blood culture findings (EBCR)

- AlertsNet includes microbiological test results, clinical data and detailed information on anti-infective treatment from all patients with clinically relevant positive BCs at the participating centers

OBJECTIVE

- To evaluate anti-infective therapy during the first year of data collection in AlertsNet

METHODS

- We included data from 8 hospitals (with 5 associated labs) in Thuringia collected between 10/2014 and 09/2015

- Clinical data (including daily updated information on anti-infective treatment) from all patients with clinically relevant positive BCs were collected via eCRFs

RESULTS

- A total of 798 episodes of BSI in 777 patients were included

- In 205 (25.7%) of the 798 episodes, empirical anti-infective treatment (with one to five different drugs) was already given when the first BC set was taken. Most frequently used antibiotics were piperacillin / tazobactam (32.7%), ciprofloxacin (20.0%), meropenem (14.6%) and vancomycin (10.5%) (Figure 1)
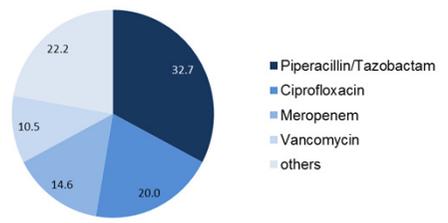

Figure 1: Antimicrobial drugs used as empirical therapy initiated before first BC was taken (n=205 episodes)

- In the majority of episodes (74.3%), empirical anti-infective therapy was initiated after BC sampling; in these cases, piperacillin / tazobactam (30.5%), ceftriaxone (17.4%), ciprofloxacin (9.6%), cefuroxime (8.3%) and meropenem (6.2%) accounted for the majority of antimicrobial treatments (Figure 2)

- Adaption of anti-infective therapy according to BC results was necessary at least once in 48.7% of episodes where empirical treatment was initiated after BC sampling, and in 54.2% of episodes with therapy already in place when the first BC was taken (p=0.182)
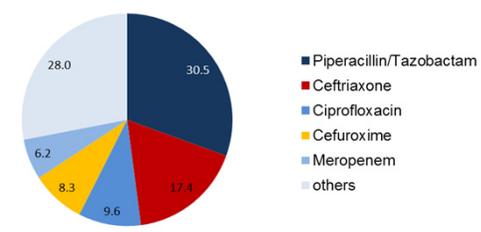

Figure 2: Antimicrobial drugs used as empirical therapy initiated after first BC was taken (n=593)

- Median duration of treatment (Figure 3) differed dependent on the anti-infective drug used

- It ranged from four (ciprofloxacin) and five days (piperacillin / tazobactam) to nine (tigecycline) and ten days (voriconazole) and showed a strong association with disease severity (p<0.001)
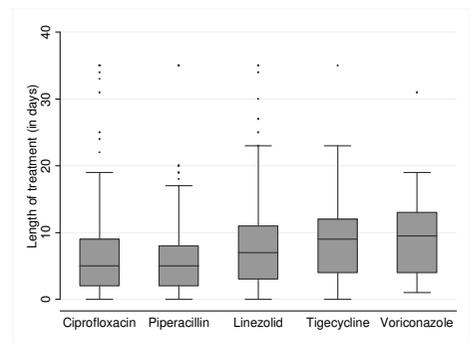

Figure 3: Length of treatment for selected anti-infective drugs

CONCLUSIONS

- The data showed the potential for monitoring and evaluating treatment decisions in the context of increased antimicrobial resistance

- Future analysis of pathogen and susceptibility data will be used for developing interventions in order to improve treatment and outcome of patients with bloodstream infections

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