Early antibiotic stewardship starts in the emergency department

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Background: Since Emergency Departments (EDs) are at the crossroads of inpatient and outpatient care, they represent a critical setting for initiating interventions which could reduce inappropriate antibiotic (ATB) prescribing. Due to the transfer of patients under ATB to other wards, antimicrobial stewardship programs (ASP) in the ED could impact usage on afferent wards as well. However, the ED differs from inpatient care units primarily in the need for rapid patient turnaround. Clinical decisions are often based on preliminary laboratory results and microbiological tests are seldom rapidly available. Therefore in this setting ASP have been rarely implemented and a few evidence for effectiveness is available.

Objectives: Primary aims of this project were to reduce the ATB consumption (in particular carbapenems and piperacillin-tazobactam) in the ED of a 1541-bed university hospital. The second objective was to reduce the rate of Clostridium difficile infections (CDI) in the afferent wards.

Design: The study was designed as interrupted time series. An 8-week observational study was performed to define usage, indications and major problems in prescribing, followed by 52 weeks intervention and 24 weeks follow-up without ASP.

Setting: A non-surgical interdisciplinary ED, with 20 beds and 6 emergency rooms and 10400 admission/year.

The Antimicrobial stewardship program included:
- online BSAC ATBS course for all ED fellows;
- local consented guidelines (LCG) for the most frequent indications tailored towards weekly audit and feedback of therapy with the whole team of ED physicians and expert ID consultants;
- weekly newsletters reporting microbiological data, antibiotic usage, “LCG-non compliant” cases and an educational section with relevant ATB courses and articles.

Results

Patients started on Antibiotics 1523 (21%)

Patients admitted to the ED between Jan-Sep 2016: 7282

ASP in ED can be feasible and effective. Our model, using nonrestrictive methods, can lead to antibiotic restriction in the ED and favorably impact on CDI. Multicenter studies in different epidemiological settings are needed to define generalizability and cost effectiveness.