HAITool: Supporting Clinical Pharmacist?s Role on Antibiotic Stewardship through an Innovative Information System

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Background Antibiotic prescribing is a complex process. Antibiotics are among the most prescribed and used drugs in clinical practice. However, it is estimated that 20-50% of antibiotics are improperly prescribed. Antibiotic Stewardship Programs (ASP) could contribute to optimize Antibiotic therapy, ensuring proper use and minimizing side effects.

Purpose This work aims at characterizing the utilization of antibiotics in an intensive care unit (ICU) of cardiac surgery after the first six months of implementation of an ASP. The implementation was made through both the collaboration of a multiprofessional team (internists, cardiac-surgeons, pharmacists and nurses), and the use of an information system (HAITool).

Method This retrospective descriptive study analyzes data gathered six months before and after the implementation of the ASP. It was completed with an observational study focused on the role of the clinical pharmacist. The multiprofessional team visited the patients in the ICU ward weekly, focusing on patients with a length of stay higher than 7 days. Patients in this unit generally received antibiotic prophylaxis with vancomycin and gentamicin 48h prior to surgery, but the focus of the intervention was on the post-surgery antibiotics prescriptions.

Findings A reduction of 3.61% in the overall consumption of antibiotics was observed, with ciprofloxacine and linezolide showing reductions of about 96%. On the other hand, consumption of antibiotics such flucloxacillin or amoxicillin/clavulanate showed an increase of 300-to-500%, suggesting a switch to first line antibiotics. The two most consumed antibiotics in this ICU were gentamicin and cefazoline. After six months of intervention, gentamicin consumption decreased 1,32%, while cefazoline consumption increased 27,38%. In 30% of the bedside visits, a pharmacist intervention was registered (e.g. dose adjustment or IV/Oral switch counseling; answering to pharmacodynamics requests; counseling on drug interactions). The access to information on antibiotics use, microbiology data and prescription patterns, through this evidence-based tool, was considered a major driver for a successful ASP.

Conclusion It was clear that the HAITool in this hospital enabled a quick access to information that was critical to inform the successful implementation of the ASP. Nevertheless, data regarding the total consumption in DDD per 1000 patients is still needed to strengthen the analysis of the results and allow comparisons with other units. However, a better use and access to the information on antibiotics use, microbiology data and prescription patterns in the unit, will allow better tailored solutions to aid professionals in the implementation of ASP.