IMPLEMENTATION OF AN EMPIRICAL ANTIBIOTIC TREATMENT GUIDE: IMPACT ON ANTIOBITIC PRESCRIPTION IN AN EMERGENCY DEPARTAMENT

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INTRODUCTION

An empirical antibiotic treatment guide (EATG) was implemented in our hospital in January 2017. This guide was developed by antimicrobial stewardship team, composed of infectous disease specialists, microbiologists and pharmacists. The aim was to optimize the antibiotic prescription, avoiding the use of antibiotics associated with resistance development, such as quinolones, third generation cephalosporins and carbapenems (1,2).

PURPOSE

To evaluate changes in the antibiotic consumption and their costs, after the EATG implementation in the Emergency Department of our hospital.

To analyse changes in the antibiotic prescription profile after this implementation.

MATERIAL AND METHODS

Retrospective study from 2016 to 2017 in a third level hospital. The antibiotic consumption data and its costs in 2016 (pre-intervention) and 2017 (post-intervention) are compared. The data are obtained from the hospital pharmacy management program (antibiotic treatment during the stay in the emergency room) and the primary care management program (prescription at discharge).

Antibiotic consumption is transformed into defined daily doses (DDDs) and adjusted to emergencies attended (EMERG) (data provided by the Admission Service).

The analysis was done in an Excel® table and statistical comparisons were performed with Fisher´s exact test provided by Epi Info 7 (3). A p value of less than 0,05 being considered as a prove of significance.

RESULTS

ANTIBIOTIC GROUP (ATC code, J01)	2016	2017	Absolute difference (IC 95%)	Relative difference (IC 95%)	p value
N (Emergency atended)	174.232	180.826			
	DDD/1000 EMERG (%)	DDD/1000 EMERG (%)			
BETALACTAMS, PENICILLINES (J01C)	615,21 (47,12%)	661,02 (55,43%)	45,81 (44,15; 47,47)	1,074 (1,072; 1,077)	<0.01
- Amoxicillin clavulanic acid	575,23 (93,50%)	623,69 (99,65%)	48,46 (46,85; 50,07)	1,084 (1,081; 1,087)	<0.01
OTHER BETALACTAMS	337,11 (25,82%)	266,03 (22,31%)	-71,08 (-72,22; -69,94	0,789 (0,786; 0,792)	<0.01
- Third-Generation Cephalosporins	116,76 (34,64%)	68,30 (25,68%)	-48,46 (-49,09; -47,82)	0,585 (0,581; 0,589)	<0.01
- Carbapenems	3,72 (1,11%)	2,34 (0,88%)	-1,38 (-1,50; -1,27)	0,629 (0,606; 0654)	<0.01
QUINOLONES	269,86 (20,67%)	181,30 (15,20%)	-88,56 (-89,55; -87,57)	0,672 (0,669; 0,675)	<0.01
- Levofloxacin	208,21 (77,16%)	129,75 (71,57%)	-78,46 (-79,32; -77,61)	0,623 (0,612; 0,626)	<0.01
OTHERS	83,38 (6,38 %)	84,16 (7,06%)	0,78 (0,17; 1,38)	1,01 (1,00; 1,02)	<0.05
TOTAL	1305,57 (100,00%)	1.192,52 (100,00%)	-113,05 (-115,40; -110,70)	0,913 (0,912; 0,915)	<0.01

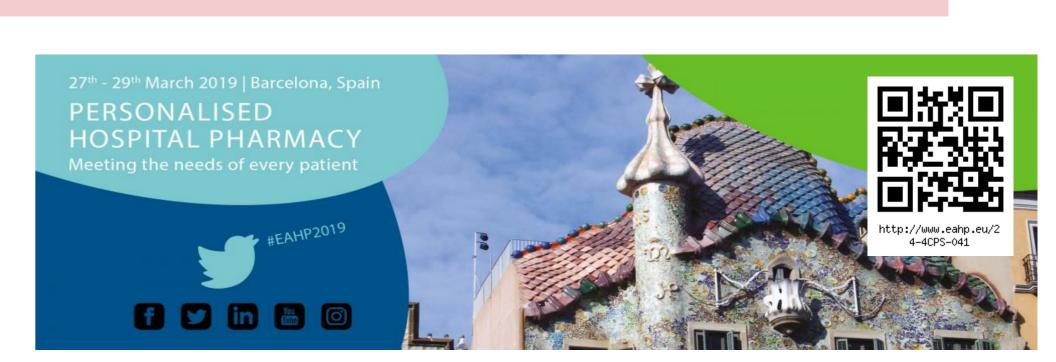|	2016	2017
TOTAL COST/ 1000 EMERG	1.422,33 €	1.256,64 €

CONCLUSIONS

We find a significant antibiotic consumption decrease after the implementation of the EATG. This reduction is associated with cost savings.

We notice important changes in the antibiotic prescription profile: quinolones, third generation cephalosporins and carbapenems prescriptions decrease (about 30-40%) and, simultaneously, amoxicillin clavulanic acid prescriptions increase (less than 10%).

Levofloxacin is the main factor related with quinolones reduction. This could indicate a proper use of antibiotics in respiratory pathology.

These changes suggest an optimization of antibiotic prescription in the Emergency Department because we observe a reduction in the use of antibiotics associated with resistance development.

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