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ANTIBIOTIC PRESCRIPTION THROUGH MOTIVATED REQUEST: CLINICAL PHARMACY TOOL TO IMPROVE APPROPRIATENESS AND LIMIT RESISTANT BACTERIAL STRAINS. A FOLLOW-UP AFTER A YEAR OF MONITORING IN A LOCAL HOSPITAL.

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BACKGROUND

In Italy antimicrobial resistance is among the highest in Europe. ECDC 2017 Surveillance Report confirms a high percentage of critical bacterial isolates with disturbing AMR(AntiMicrobialResistance) characteristics, according to WHO list of dangerous bacteria: Klebsiella pneumoniae resistant to carbapenems close to 28%; Escherichia coli with combined resistance(third-generation cephalosporin, fluoroquinolones and aminoglycosides) close to 20%; Acinetobacter strains resistant to carbapenems approximately 70% in Italy. Hospital Pharmacy play a main role in monitoring antibiotic prescription, in order to limit resistant bacteria strains selection.

PURPOSE

Describe the pattern of antimicrobial prescribed with motivated request, comparing 2019 data to that of previous year, in order to define future strategy of intervention.

MATERIALS AND METHODS

We collected data from antibiotic prescriptions form from January to June 2019. We compared data with that of same period of 2018. An Excel database was created. We focused on: length of therapy, type of infection, carbapenems amount used, resistant bacteria strains, appropriateness of antibiotic choice according to antibiogram.

RESULTS

We collected antibiotic prescriptions for 177(vs148 in 2018) patients(58% male, 42% female). Average age was 62 years old. Average length of therapy was 8,4 days(previous year 10,5 days). Prevalent types of infection were: 12%(vs 23% of 2018) Urinary Tract Infection(UTI), 26%(vs 22% of 2018) Respiratory Tract Infections(RTI); 14% Sepsis(same as 2018), 13%(vs 10% in 2018) Surgical Site Infections(SSI). Concerning critical bacteria strains (Table 1): in 23%(vs 26% in 2018) of UTI E. Coli ESBL+ was isolated and treated with carbapenems; only 2(vs 5 in 2018) Klebsiella carbapenem-resistant; 0 (vs 1 in previous year) isolation of Acinetobacter baumanii MDR(MultiDrugResistant); 2 Pseudomonas Aeruginosa carbapenem-resistant, which required treatment with ceftolozane/tazobactam with clinical benefit. Considering all patients, 62%(vs 54% in 2018) of patients were treated with carbapenems. Antibiograms were enclosed to 25%(41/162) motivated request, and 25%(10/41) of these were inappropriate, because it should be chosen piperacillin/tazobactam or cephalosporins instead of carbapenems.

Table1.CRITICAL BACTERIA STRAINS	Number of isolation (Type of infection)		Treatment
	2019	2018	
E. Coli ESBL+	23%	26% (UTIs)	Carbapenems
Klebsiella Pneumoniae carbapenem-resistant	2 (UTIs)	4 (UTIs)	Tygecicline
		1 (SSI)	Ceftolozane + tazobactam
Acinetobacter baumanii MDR	0	1 (Complicated pneumonia)	Colistin
Pseudomonas aeruginosa	2	3	Ceftolozane + tazobactam; Ceftazidime + avibactam

CONCLUSIONS

Although it was observed a slight critical bacteria strains reduction comparing to previous year and an improvement of average length of therapy, carbapenems usage increased. This was due also to antibiogram misinterpretation. Future objective has to be improvement of carbapenem-sparing-strategy, through clinical pharmacist validation of antibiogram, and hospital training meetings.

ESKAPE