MONITORING AND RATIONALISATION OF ANTIBIOTICS PRESCRIBED IN HOSPITAL

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Background

In recent years, resistance of *Klebsiella pneumoniae*, *Escherichia coli*, and strains of methicillin resistant *Staphylococcus aureus* (MRSA) to carbapenems and fluoroquinolones has been increasing. To avoid antibiotic resistance, it is necessary to reserve carbapenems and fluoroquinolones for those situations where there is no therapeutic alternative [1,2], as they are a weapon that can play a decisive role in the fight against healthcare associated infections.

According to the study *Hayachi Y et al*., what contributes the most for the inadequate use of antibiotics is the excessive time of therapeutical use. [3]

The correct identification on microorganisms allows the decrease of usage broad spectrum antibiotics, however not all patients have indication for blood cultures. [4,5] It is important to identify the high risk patients that could benifit from molecular analysis. [6]

Purpose

- To analyse antibiotic prescriptions in hospital wards.
- To reduce consumption and duration of antibiotic therapy in hospitals.
- To develop strategies to minimise errors found in the prescription of antibiotics.

Methods

Monitoring system by double verification of antibiotics prescription.

All inpatiens of the internal medicine department ward were included (18 years old and above), from November 2014 until February 2015.

Selection of cases

All antibiotic prescriptions

Data collection and recording in the database

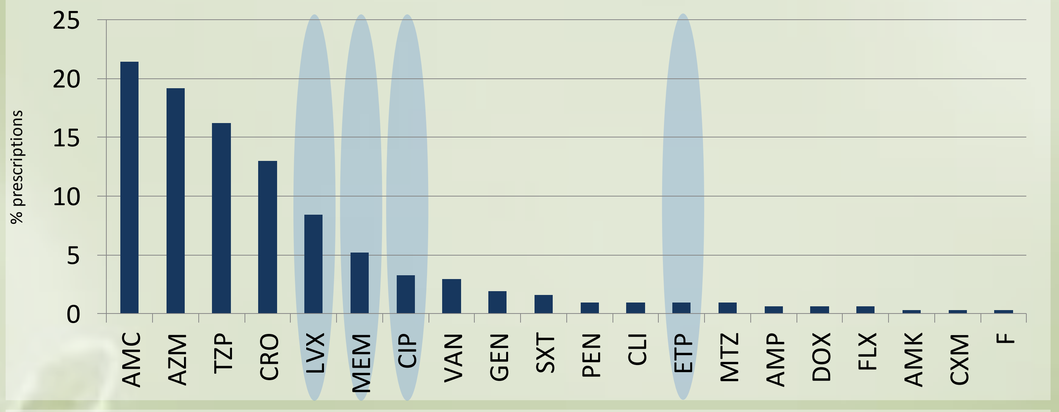
Antibiotic prescriptions	Clinical information	Laboratory analyses	Pharmaceutical report	Infectious disease physician report

Data analysis to develop strategies that promote the rational use of antibiotics

Results

- Out of 331 antibiotic prescriptions were analysed: 11% were quinolones and 6% were carbapenems. (graph 1)

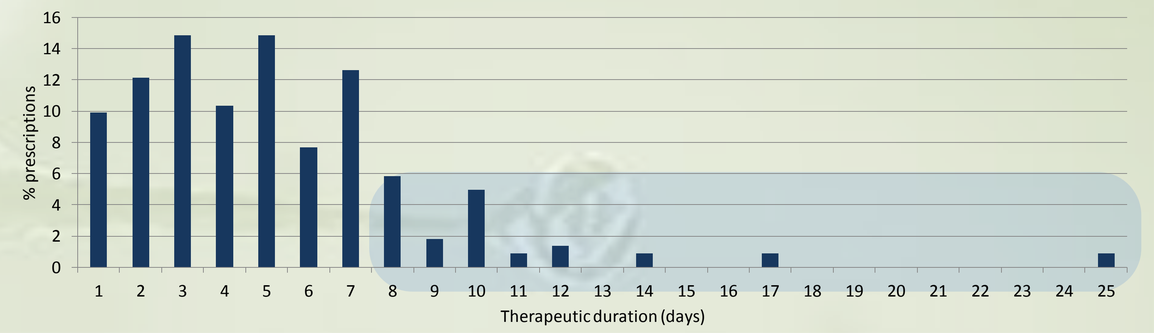
Graph 1 – Antibiotic prescriptions



AMC=Amoxicillin-clavulanate, **AZM**=Azithromycin, **TZP**=Piperacillin-tazobactam, **CRO**=Ceftriaxone, **LVX**=Levofloxacin, **MEM**=Meropenem, **CIP**=Ciprofloxacin, **VAN**=Vancomycin, **GEN**=Gentamicin, **SXT**=Sulfamethoxazole+Trimethoprim, **PEN**=Penicillin G, **CLI**=Clindamycin, **ETP**=Ertapenem, **MTZ**=Metronidazole, **AMP**=Ampicillin, **DOX**=Doxycycline, **FLX**=Flucloxacillin, **AMK**=Amikacin, **CXM**=Cefuroxime, **F**=Nitrofurantoin

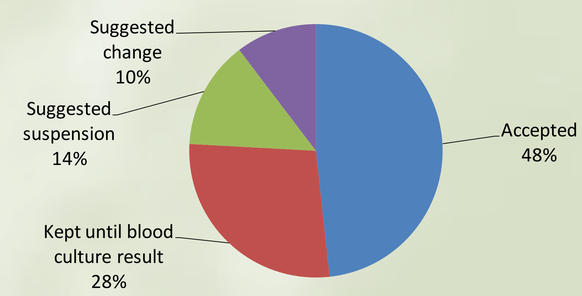
- About 18% of antibiotic prescriptions had a longer duration than 7 days. (Graph 2)

Graph 2 – Duration of the antibiotic therapy

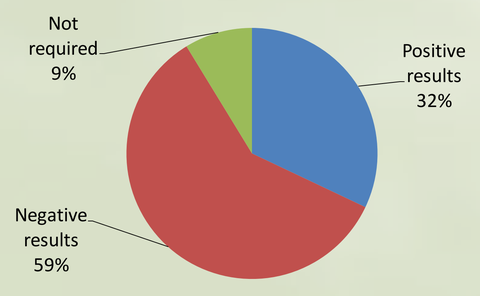


- Of the total antibiotic prescriptions analysed by infectious disease physician, 48% were accepted, 28% were accepted until the laboratory results were available, 14% were suspended and 10% had to be changed to another antibiotic. (Graph 3)
- Of all antibiotic prescriptions, 59% had negative blood cultures. (Graph 4)

Graph 3 – Infectious disease physician report



Graph 4 – Blood cultures



Conclusion

The percentage of carbapenems and fluoroquinolones used in this Hospital is high. It is essential to monitor the prescription of these antibiotics, when the duration for more than 7 days. [7]

More than 50% of antibiotic prescriptions reviewed were not suitable, which reveals the need for monitoring of antibiotic prescriptions by a multidisciplinary team.

The role of the hospital pharmacist is essential in the coordination of various players: infectious disease services, pharmaceutical services and pathology laboratory.

References

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