ISSN No:-2456-2165

Study of Antibiotic Prescription in a Pharmacy in the City of Batna (Algeria)

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Abstract:- Infectious diseases are a major public health problem, which leads to a very high consumption of antibiotics.

The aim of this study was to evaluate the antibiotic prescription in a pharmacy in the city of Batna (Algeria).
Methods: This is a prospective descriptive study from April 1, 2022 to September 2022 on the prescriptions received at a pharmacy. Each prescription contains at least one antibiotic.

Results: among the 8134 prescriptions included in our study, 31.26% were prescribed by general practitioners and the most prescribed drug was amoxicillin (23.29%). The oral route was the most used (64.02%).

Conclusion: The prescription of antibiotics has reached high levels in the city of Batna. We recommend measures to optimize antibiotic therapy in Batna.

Keywords:- *Prescription - Antibiotics - Batna.*

I. INTRODUCTION

The Infectious diseases are a major public health problem. They represent 4.58% of the reasons for consultation in Algeria in 2007[1]. As a result, the consumption of antibiotics is important. Today, the prescription of antibiotics is still commonplace in humans. The misuse of antibiotics contributes to the emergence of highly resistant bacteria, the dissemination of which has recently accelerated worldwide [2].

The objective of this study was to provide enough information regarding antibiotic prescribing in a pharmacy in Batna (Algeria).

II. MATERIAL AND METHODS

This is a prospective descriptive study based on the analysis of prescriptions received at a pharmacy in the city of Batna over a period of 6 months (from April 1, 2022 to September 30, 2022).

The study included all prescriptions received at the pharmacy during the study period, including at least one antibiotic.

The prescriptions were used, on the one hand, to collect information related to the patient, i.e. age and sex, and the prescriber's specialty, and on the other hand, the recording of any antibiotic prescribed, as well as its dosage and galenic form.

The appropriateness of antibiotic prescribing was not assessed due to lack of information.

Data entry and analysis were done with SPSS version 22 software.

All results represented in this study are completely anonymous and no traceability can be established.

III. RESULTATS AND DISCUSSION

At the end of our study, 8134 prescriptions were included. General medicine prescriptions occupied 31.26% of our sample, followed by pediatrics 18.27% and dental surgery 10.87%.

Prescriber's specialty	n	Frequency (%)
General Medicine	2543	31.26
Pediatrics	1486	18.27
Dental Surgery	884	10.87
Gynecology	749	9.21
General surgery	663	8.15
Otorhinolaryngology	550	6.76
Ophthalmology	432	5.31
Pneumology	430	5.29
Gastrology	220	2.71
Dermatology Oncology	32	0.39
Total	**8134**	**100**

Table 1: Distribution by prescriber's specialty.

More than half of the included prescriptions came from the private sector (59.54%) while the rest (40.46) came from state hospital facilities.

The average age of the patients was 22.60 years with extremes of one month and 92 years. The most affected age group was children (0-10 years), followed by adults (20-30 years).

There was a predominance of males with a sex ratio M/F= 1.32.

ISSN No:-2456-2165

The average number of antibiotics prescribed was 1.40, ranging from monotherapy to a combination of three antibiotics.

number of antibiotics prescribed	n	Frequency (%)
1	4286	60.26
2	2612	33.60
3	1236	6.14
Total	**8134**	**100**

Table 2: Distribution by number of antibiotics prescribed per prescription.

A total of 10746 antibiotics were prescribed in our study. The most commonly used family of antibiotics was the betalactamins with a little more than half of all prescriptions (51.3%). This was followed by macrolides (22.83%) and imidazoles (16%).

Antibiotic family	n	Frequency (%)
Beta lactams	5513	51.3
Macrolides	2453	22.83
Imidazoles	1720	16
Quinolones	325	3.02
Aminosides	224	2.09
Sulfonamides	137	1.27
Cyclines	132	1.24
Fusidic acid	126	1.17
Nitro derivates	116	1.08
Total	**10746**	**100**

Table 3: Distribution by antibiotic family.

Among the betalactam antibiotics, prescriptions for the penicillin subfamily accounted for slightly less than one-third of all antibiotic prescriptions (32.20%) and more than half, 62.77% (3461/5513) of all betalactam prescriptions.

Amoxicillin was the most prescribed drug and was found in 23.29% of prescriptions (15.53% alone and 7.76% in combination with clavulanic acid).

Among the macrolides, azithromycin was the most widely used molecule 74.19% (1820/2453).

The most commonly used route of administration was oral in more than two thirds of cases (64.02%) followed by local (20.47%) and injectable (15.51%).

Our results seem to agree with the results of a study carried out in a pharmacy in the same city between July 2013 and June 2014 which reported that 51.4% of prescriptions were made by general practitioners, and that the most prescribed family in Batna was that of penicillins (32.6%) [2].

Our study showed a wide use of azithromycin, which can be explained by its prescription in the treatment of COVID19.

The pediatric population was the most affected by antibiotic prescription in our study. This can be explained by the proximity of the pediatric physicians and the mother and child hospital.

According to our results, there is a high exposure of the population to antibiotics.

This high frequency of antibiotic prescription in our study reflects the level of selection pressure caused by the use of antibiotics in our patients.

In Brazil, orthodontists reported prescribing antibiotics in situations where they were not justified [3]. therefore, a training of prescribers is necessary.

The excessive use of antibiotics has led to the emergence of bacterial resistance [4].

Antibiotic prescribing must consider not only the desired effect on the treated patient's infection, but also its impact on the bacterial ecology and thus on the community. [5].

Further local and national studies with a more thorough methodology should be undertaken to better understand antibiotic consumption and limit their inappropriate use.

IV. CONCLUSION

Our study allowed us to better target antibiotic therapy practices in the city of Batna, particularly because of the population's high exposure to antibiotics.

B-lactams remain the most prescribed family of antibiotics. This prescription must always respect the guidelines and recommendations of good practice in order to limit the emergence of bacterial resistance and avoidable hospitalizations.

An antibiotic therapy guideline will be an essential tool for promoting the proper use of antibiotics and must be accessible to prescribers.

Monitoring antibiotic consumption is a fundamental element in the fight against antibiotic resistance.

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ISSN No:-2456-2165

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