

Prevalence of Unprescribed Purchase of Antibiotics in Khartoum State and Aljazeera State

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Abstract

Background: Antibiotics are steadily losing their effectiveness, and superbugs have become a global agony that undermines human, animal, and environmental health; the world economy, and regional and global safety. All major regulatory, economic and political bodies around the world - including the World Health Organization (WHO), have recognized antimicrobial resistance as one of the biggest public health challenges of all times [1].

Method: A community-pharmacy based cross-sectional study was conducted in Khartoum State, Aljazeera state, Sudan with a sample size of 170.

Results: The results of our study show that antibiotics can easily be purchased without medical prescription; about 95% of community pharmacies dispensed at least one antibiotic without prescription. The highest percentage of the sold Azithromycin (95%) and Amoxicillin (95%) followed by Ciprofloxacin (60%) (Table 1 shows all findings).

Conclusion: The predominance of self-medication with antibiotics in the community is extremely high. This could reflect the patterns within the entirety of Sudan. Pharmacists play a main role in those trends along with the lack of health awareness.

The irrational use is one of many factors contributing to this crisis we have in hand, very avoidable and can be countered by establishing simple rules for pharmacies enforced by the federal ministry of health and not just bureaucratic ink on paper, with extensive campaigns on both the ground and social media to enlighten the public about the problems of irrational use of antibiotics.

Keywords: Neuropathy; CCI; Phenolic Acids; MNCV; Neuroprotective

Introduction

The unseemly utilize of anti-microbials for the treatment of patients with common diseases could be a worldwide issue, with suggestions for expanding treatment costs, unfavorable occasions and choice of antibiotic-resistant germs [2]. Outpatient utilize of anti-microbials accounts for more than two-thirds of anti-microbial sales in the world. Self-medication with anti-microbials could be a common practice in most nations and is one of the reasons for the increment within the anti-microbial resistance of the microorganisms in these regions. Additionally, in a few nations, it is conceivable to purchase anti-microbials in community drug stores without a medicine signed by a doctor [3] and Sudan is the perfect example for this.

Already set up approaches were confining and directing to some degree the dispensing of anti-microbials in community drug stores but small is known with respect to the current practice. Dispensing anti-microbials without a medicine and the need of awareness with respect to the misuse of anti-microbials within the absence of a dynamic administrative part may contribute to the uncontrolled hone of self-medication and subsequently anti-microbial resistance within the Sudan community.

And to look at the essence of the problem from a microbiological point of view, lets view those examples, within the cases caused by infections with penicillin-non susceptible *S. pneumoniae* (PNSP), studies have demonstrated that at the individual level, past utilize of betalactam anti-microbials such as penicillin is a critical risk figure [4,5]. Studies on PNSP in children have demonstrated that macrolides such as erythromycin and sulfamethoxazole-trimethoprim (co-trimoxazole) also been in association of antibiotic consumption. When the population were observed for possible association, it appeared that sales of co-trimoxazole, beta-lactam anti-microbials or macrolides in a given geographic locale may be a cause to microbial resistance to penicillin [6,7]. This can affect the microbiota in their human hosts, such as *Neisseria meningitidis*, *Haemophilus influenzae*, *Escherichia coli*, *Streptococcus pneumoniae*, *Moraxella catarrhalis* and *S. aureus*. Such colonization is as a rule asymptomatic, in spite of the fact that securing of a more virulent strain or changes in host defense capabilities resistances can lead to symptomatic disease which will require anti-microbial treatment [8]. Given the pressing worldwide need to address AMR and its effect on developing nations, we outlined this study to measure sales of anti-microbials without an official prescription in drug stores, to memorize which anti-microbials are sold without medicine, and to depict the degree of trouble for getting anti-microbials without a prescription.

Methods

A community-pharmacy based cross-sectional study was conducted in Khartoum State, Aljazeera state, Sudan. civil war in Sudan and the plummeting economy within the country and for this, most of the population cannot bear essential health services.

Ethical clearance was granted from the Ethical committee of Faculty of Medical Laboratory Science, Elrazi University. The study population comprised of urban community drug stores from the city of Khartoum, Madani and Almnagl. A sample size of 170 was selected [due to the pandemic most pharmacies were out of service]. pharmacies were randomly selected. From each of the selected pharmacy, individuals were reached and given clarification about the research. Verbal consent to take part within the study was looked for during this introductory contact. Self-administered, organized pre-tested surveys were distributed to the individuals who agreed to take part by prepared undergrad medical and pharmacy students. The surveys were completed in the presence of the research students in case a few members required help.

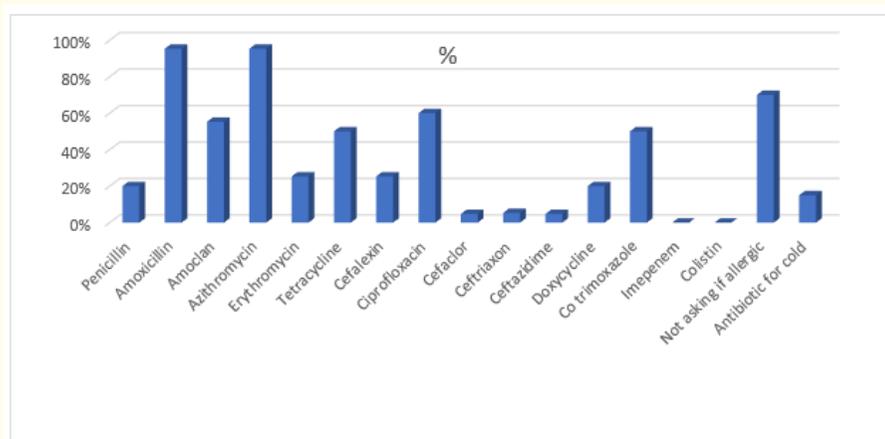
Survey consisted of both closed- and open-ended questions. In expansion to questions on statistic information, the questionnaire included questions on allergy and names of antibiotics used to treat cold and flu like symptoms.

Data were entered into the Excel program. Prevalence of self-medication within the community with anti-microbials was detailed as percentage.

Results

The results of our study show that antibiotics can easily be purchased without medical prescription; about 95% of community pharmacies dispensed at least one antibiotic without prescription. The highest percentage of the sold Azithromycin (95%) and Amoxicillin (95%) followed by Ciprofloxacin (60%) (Table 1 shows all findings).

Those findings revealed that most pharmacists were more likely to dispense antibiotics inappropriately, and they were unable to differentiate between bacterial and viral infections. This malpractice may impact public health and contribute to AMR, a global major health challenge.



Antibiotic	%
Penicillin	20%
Amoxicillin	95.3%
Amoclan	55.3%
Azithromycin	95.3%
Erythromycin	25.3%
Tetracycline	50%
Cefalexin	25.3%
Ciprofloxacin	60%
Cefaclor	4.7%
Ceftriaxone	5.3%
Ceftazidime	4.7%
Doxycycline	20%
Co trimoxazole	50%
Imipenem	0%
Colistin	0%
Not asking if allergic	70%
Antibiotic for cold	15%

Table 1: Shows the percentage of unprescribed purchase of antibiotics.

Discussion

in 2018 the federal ministry of health along and the WHO launch what so called the AMR national action plan, it was assumed that that it will contribute to the timely and effective management of AMR in Sudan. But as the data shows, nothing changed.

This project was carried out as a following for other projects that focused on the bacterial resistance itself, more specifically the ones causing problems in the ICU, for which the results were highly concerning. Its known through publications that unprescribed purchase is a main cause of this level of resistance, in which the pharmacists play a key role in facilitating this unacceptable behavior instead of becoming what expected of them, a gateway to healthcare and the health system for patients in the community settings. They have the unique opportunity to associated and teach patients about disease prevention, and stop those unfavorable behaviors and perceptions leading to anti-microbial utilize practices. Interestingly even the antibiotics that had 0% unprescribed purchase show a tragic level of resistance. This can be due to other factors like the food industry that plays a main role in the crisis, along with the use of relatively weak disinfectant in the ICU.

Prescribers recognitions regarding patient desires and requests considerably impact prescribing practices [10]. In spite of the fact that these perceptions may be off base, this will lead patients who repeatedly get pointless antimicrobials to create the misguided judgment that antimicrobials are frequently fundamental for most ailments and thus request them excessively.

Conclusion

The level of self-medication with anti-microbials within the community is extremely concerning. This could reflect the patterns within the entirety of Sudan. Pharmacists play a main role of those trends along with the lack of health awareness.

The irrational use is one of many factors contributing to this crisis we have in hand, very avoidable and can be countered by establishing simple rules for pharmacies enforced by the federal ministry of health and not just bureaucratic ink on paper; with extensive campaigns on both the ground and social media to enlighten the public about the problems of irrational use of antibiotics.

Recommendations

1. Educate all groups of prescribers and allocators (including drug venders) on the significance of suitable antimicrobial utilize and control of antimicrobial resistance.
2. Encourage prescribers and allocators to teach patients on antimicrobial use.
3. Audit prescribing and apportioning practices and utilize peer group or external standard comparisons to supply input and support of appropriate antimicrobial prescribing.
4. Provide legal and governmental immunity to pharmacists against the owners, since most of them would like to do the job right but are pressured to just sell.
5. Extensive campaigns on both the ground and social media to enlighten the public about the problems of irrational use of antibiotics.
6. All things considered; we strongly recommend that the leadership roles in this case should be entrusted to the medical researchers. As they have the passion and dedication to make a difference.

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