Offering antibiotics without medical prescriptions in pharmacies in Basra, Iraq

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Introduction

Microbial resistance to antibiotics is an emerging public health issue worldwide and has been pin- pointed as a major consequence of the inappropriate use of antibiotics[1**].**Several example of resistant bacteria have been reported in literature including penicillin resistant *Staphylococcus pneumonia* ,vancomycin resistant Enterococci , methicillin resistant *Staphylococcus aureus*and multi resistant salmonellae. A recent report by WHO found that this serious threat is no longer a prediction for the future because it is happening right now in every region of the world and has the potential to affect anyone of any age and in any country **[2].** Actually self medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the irregular or continuous use of a prescribed drug for chronic or repeated diseases or symptoms . people may self medicate with antibiotic mainly for throat symptom, teeth and gum symptoms ,nasal congestion , influenza , bronchitis and urinary discomfort . Pharmacists in particular can play a key role in giving advice to consumers on the proper and safe use of medicinal products intended for self-medication**[3].**

Antibiotic sales without medical prescriptions have been observed in many countries,unlike drugs that only affect individual patients, mis-used antibiotics add the global risk of bacterial resistance,which jeopardizes their effectiveness.In Spain

resistance rates are particularly high and their consequences are serious: resistant bacterial infections are associated with increased morbidity, mortality, health demands, hospitalization, medical expense and impairment of the effectiveness of treatment of future patients**[4].**

Resistance rate differ significantly between developing and developed countries indeed data from resistance Surveillance and Control in the mediterranean region project showed increased antimicrobial resistance in countries that have high level of antibiotic consumption such as eastern and southern countries in mediterranean region compared to low antimicrobial resistance in northern countries this situation could be explained by unregulated distribution of antimicrobials and their wide availability without prescription in developing countries which is not the case in developed countries**[3] .** The use of antibiotics should follow specific criteria; they are on top of the list of self-medication drugs in countries that do not control their commercialization as in Iraq**.**No previous studyqualitatively collected the views and attitudes of communitypharmacists towards antibiotics dispensing in Iraq.

This study has sought to estimate the percentage ofpharmacists who practice antibiotic dispensing without aprescription and identify such pharmacists' personal andprofessional views as well as their knowledge and attitudesto investigate the potential link between this and thepractice of antibiotic dispensing without a prescription.The study alsoaimed to assess the appropriateness of the dispensedantibiotics to the reported indications.

Patients and methods

A cross-sectional observation study involving 71 pharmacies in Basra city, Iraq were conducted from Nov-2014 to April- 2015. The sample was stratified by the five

regions of Basra(Eastern, Western, Northern, Southern, Central) regardless of the pharmacy's size, deprivation and education levels of the area, such sample was intended to be representative of all Basra pharmacies(426). The names of pharmacies and pharmacist director will not be disclosed for reasons of confidentiality; only locations of pharmacies were documented for perfect pharmacies distribution in the samples area. The questionnaire used in the study was designed to be completed by asking community pharmacist directors, the pharmacists were explained the purpose of the study and instructed on how to answer questions in questionnaires and were asked to report the major antibiotic dispensed in each clinical disease scenario presented in the study. The scenarios mentioned and discussed to pharmacist depend on general signs and symptoms of diseases[5] as following:

- Sore throat (difficulty swallowing for at least 24 hours)
- Chest infection(cough accompanied by sputum)
- Otitis media (ear pain, vertigo and some time with discharge)
- Sinusitis (severe headache and facial pain)
- Diarrhea (loose bowel for about 24 hours).
- Urinary tract infection (urinary frequency and burning pain during urination)

Additional information (if required) included that he is feverish or not for last 24 hours duration were provided. All these information clearly summarized in questionnaire

Statistical analysis

Data were expressed as percent Analysis was performed using GraphPad Prism software for Windows (version 5.0, GraphPadSoftware,Inc., San Diego, CA).

Results

From the randomly selected seventy one (71) pharmacies from all five regions of Basra (Eastern, Western, Northern, Southern, Central), antibiotics were dispensed without medical prescription in 70 (94.65%) with different levels of demand, while regarding pharmacist feedback to the questions asked shows some discrepancy as shown in figure1 and table 2

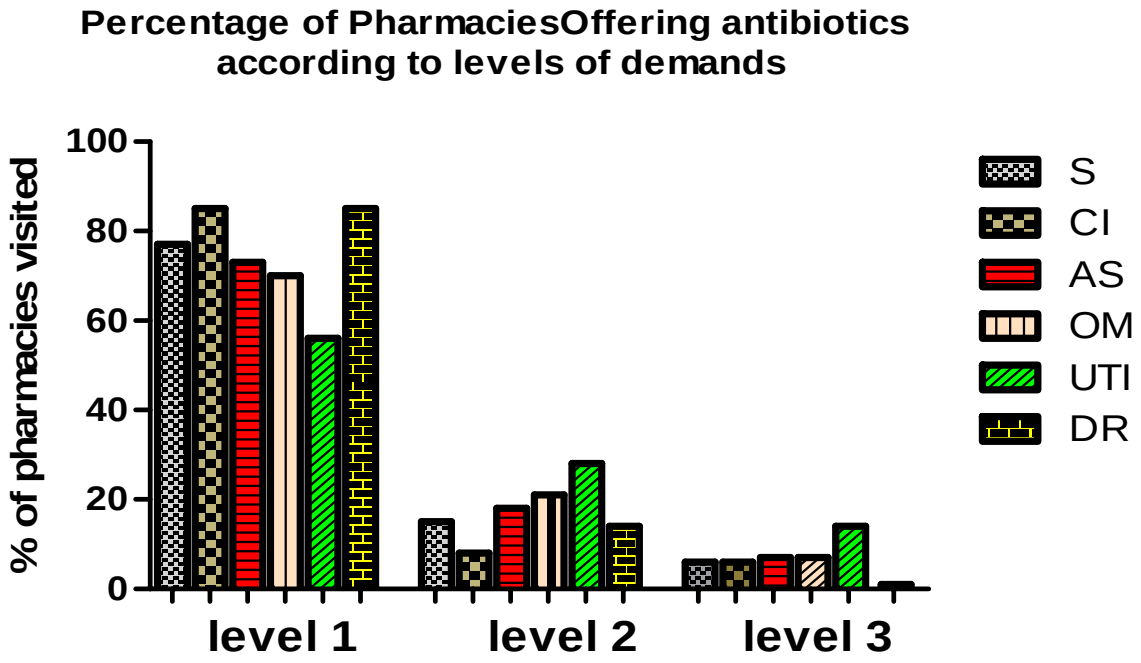

Figure1: Sale of antibiotics without medical prescriptions according to clinical cases and level of difficulty to obtain them

Table2: Pharmacists' inquiries and recommendations in Response to the simulated clinical scenarios

interview questions asked	Frequency and % of General information provided by the Pharmacists to interview questions					
	ST	CI	AS	OM	UTI	Dr
Age of patients	29(41%)	34(48%)	35(49%)	5(7%)	40(56%)	45(63%)
associated symptoms	47(66%)	57(80%)	55(77%)	5(7%)	44(62%)	10(14%)
severity of diseases	27(38%)	22(31%)	24(34%)	5(7%)	33(46%)	45(63%)
drug allergy	53(75%)	45(63%)	58(82%)	5(7%)	27(38%)	5(7%)
medical problem	21(30%)	20(28%)	15(21%)	5(7%)	25(35%0	18(25%)
pregnancy status	68(96%)	67(94%)	69(97%)	5(7%)	70(99%)	70(99%)
drug interaction	3(4%)	4(6%)	7(10%)	5(7%)	2(3%)	1(1%)
dose instruction	56(79%)	50(70%)	59(83%)	5(7%)	58(82%)	66(93%)
duration of treatment	24(34%)	22(31%)	27(38%)	5(7%)	20(28%)	15(21%)
see physician if no improvement	22(31%)	24(34%)	26(37%)	5(7%)	27(38%)	21(30%)

Different antibiotics dispensed for different diseases in the scenario. The choice of antibiotics depend on several factors:a previous doctor’s recommendation, according to treatment guidline, having tried it before ,recommendation by patients or havingheard about it. With respect to antibiotics dispensing in Basra, figures 2-7 illustrate our finding

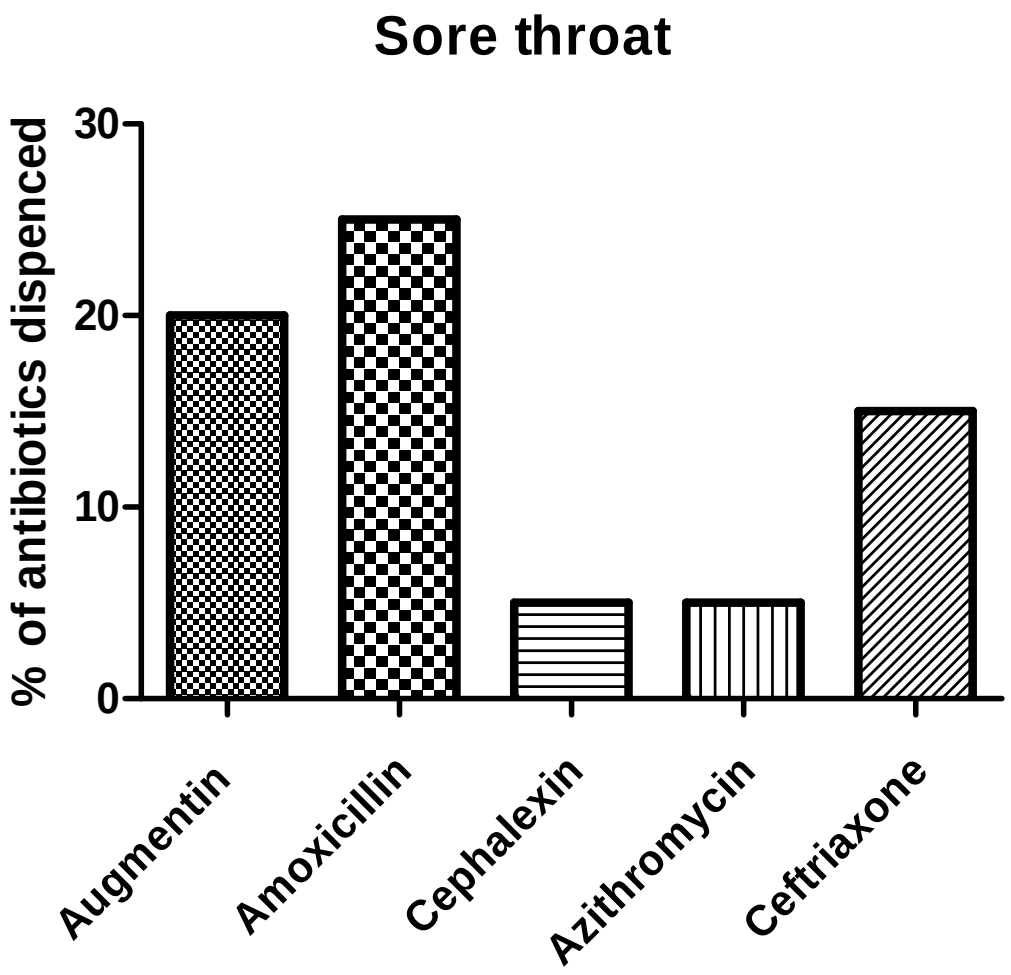

Figure2: antibiotics dispensed in response to patient/customer request in sore throat

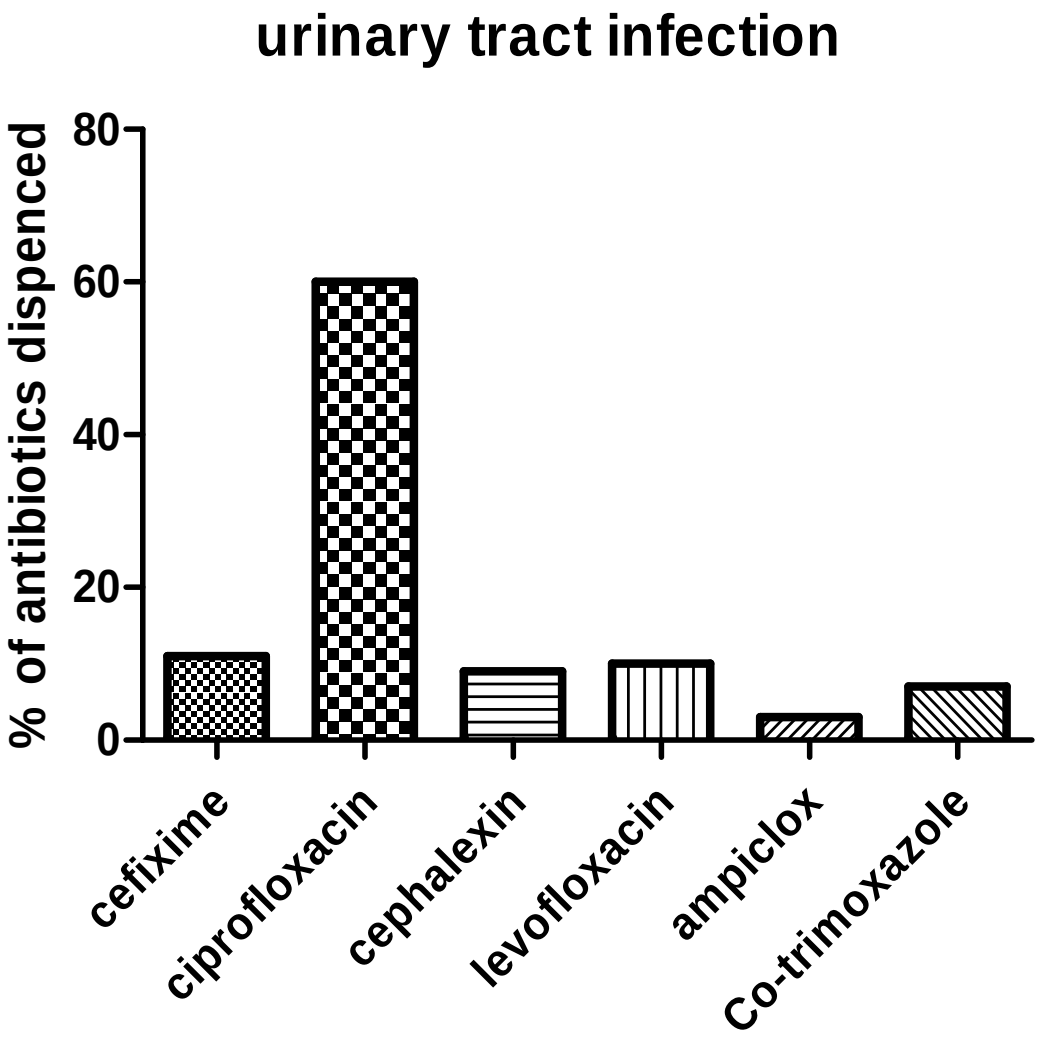

Figure3: antibiotics dispensed in response to patient/customer request in UTI

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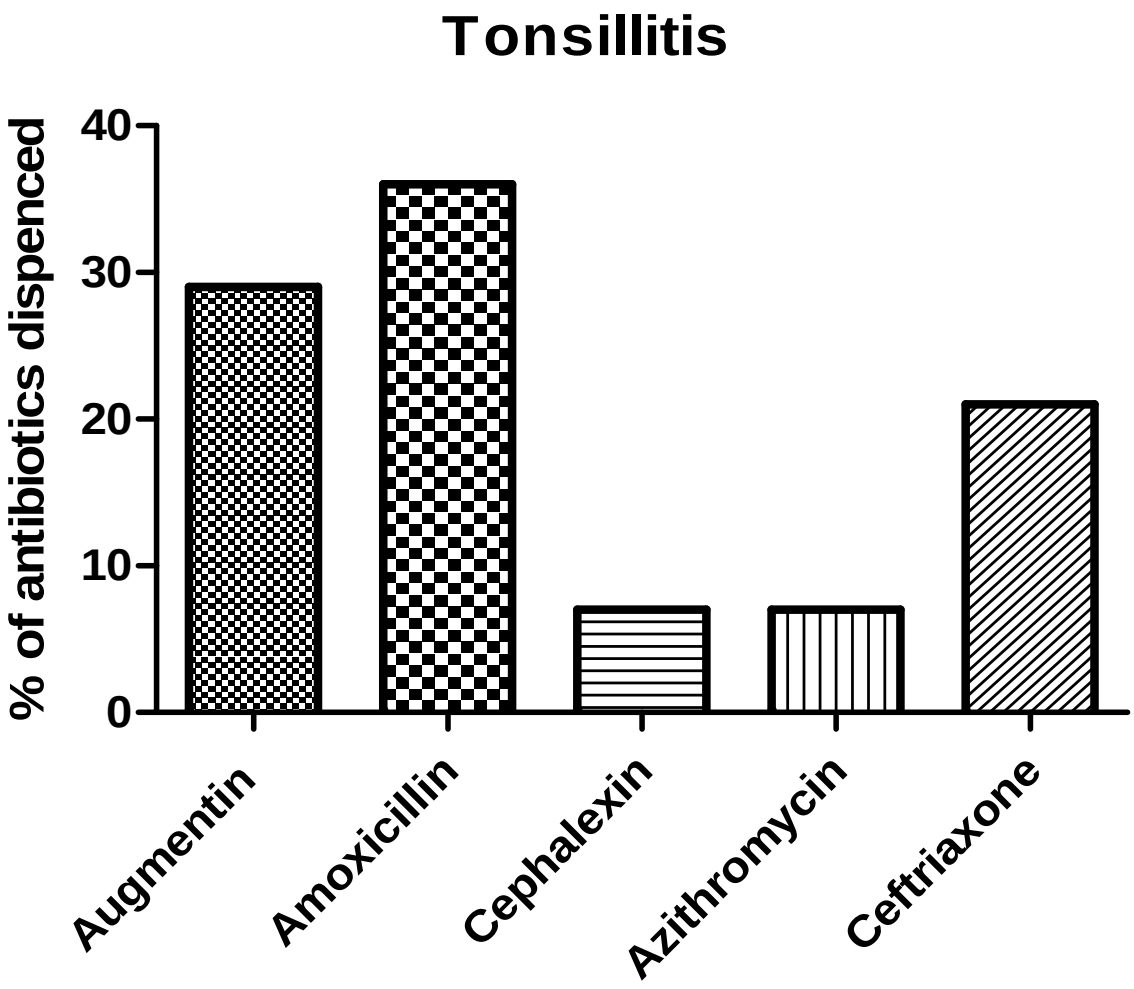
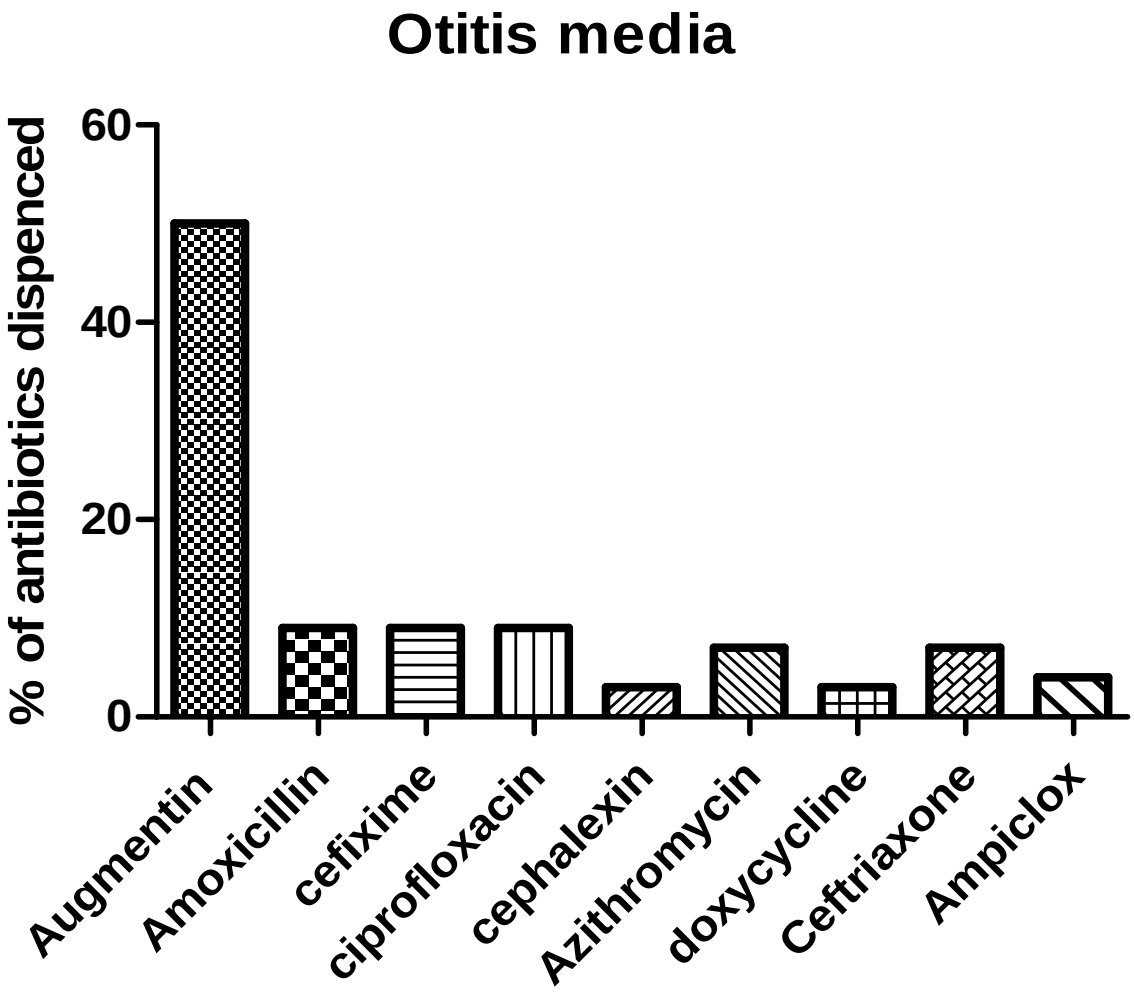


Figure4: antibiotics dispensed in response to patient/customer request in tonsillitis

Figure 5: antibiotics dispensed in response to patient/customer request in otitis media



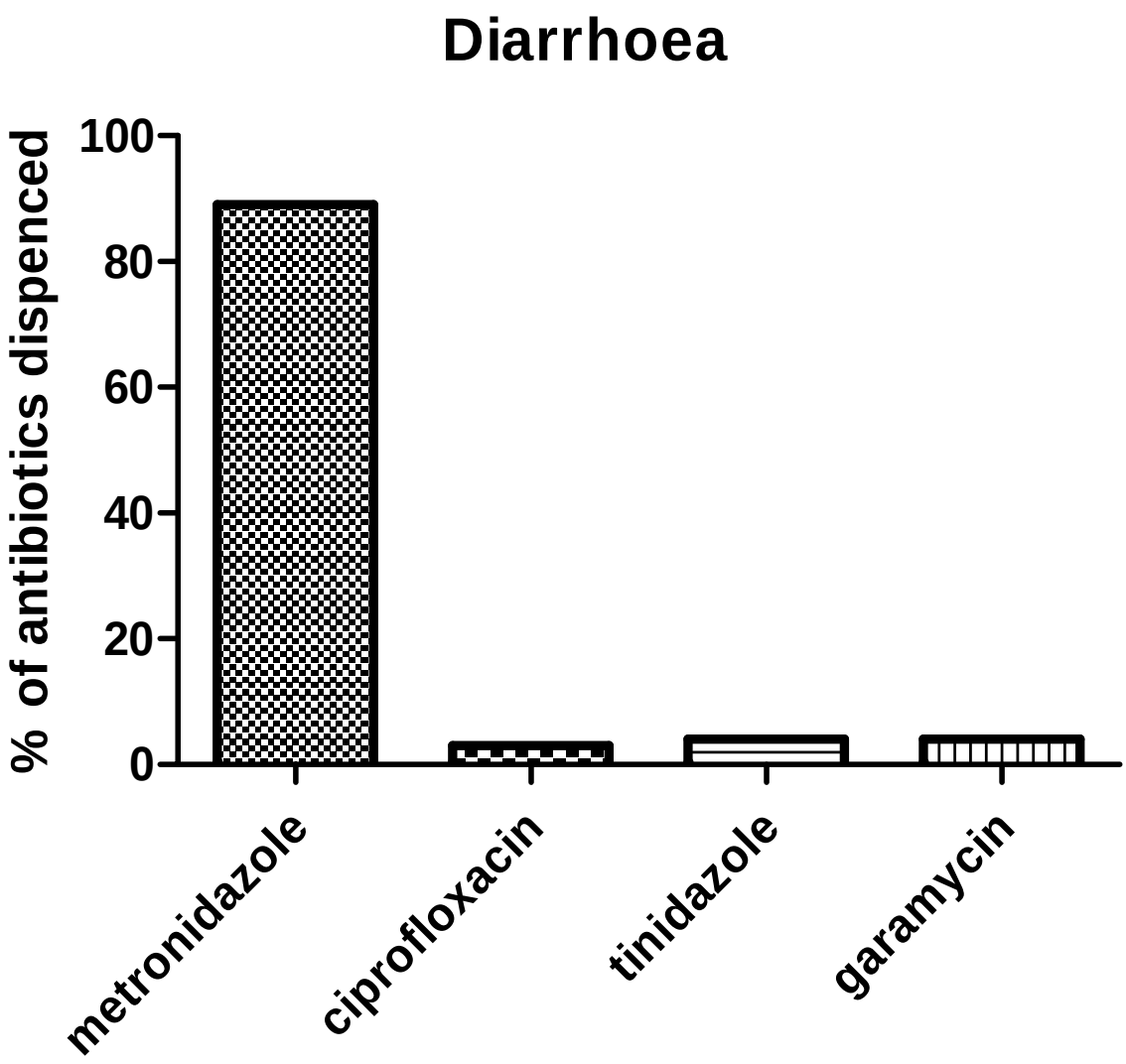


Figure6: antibiotics dispensed in response to patient/customer request in diarrhoea

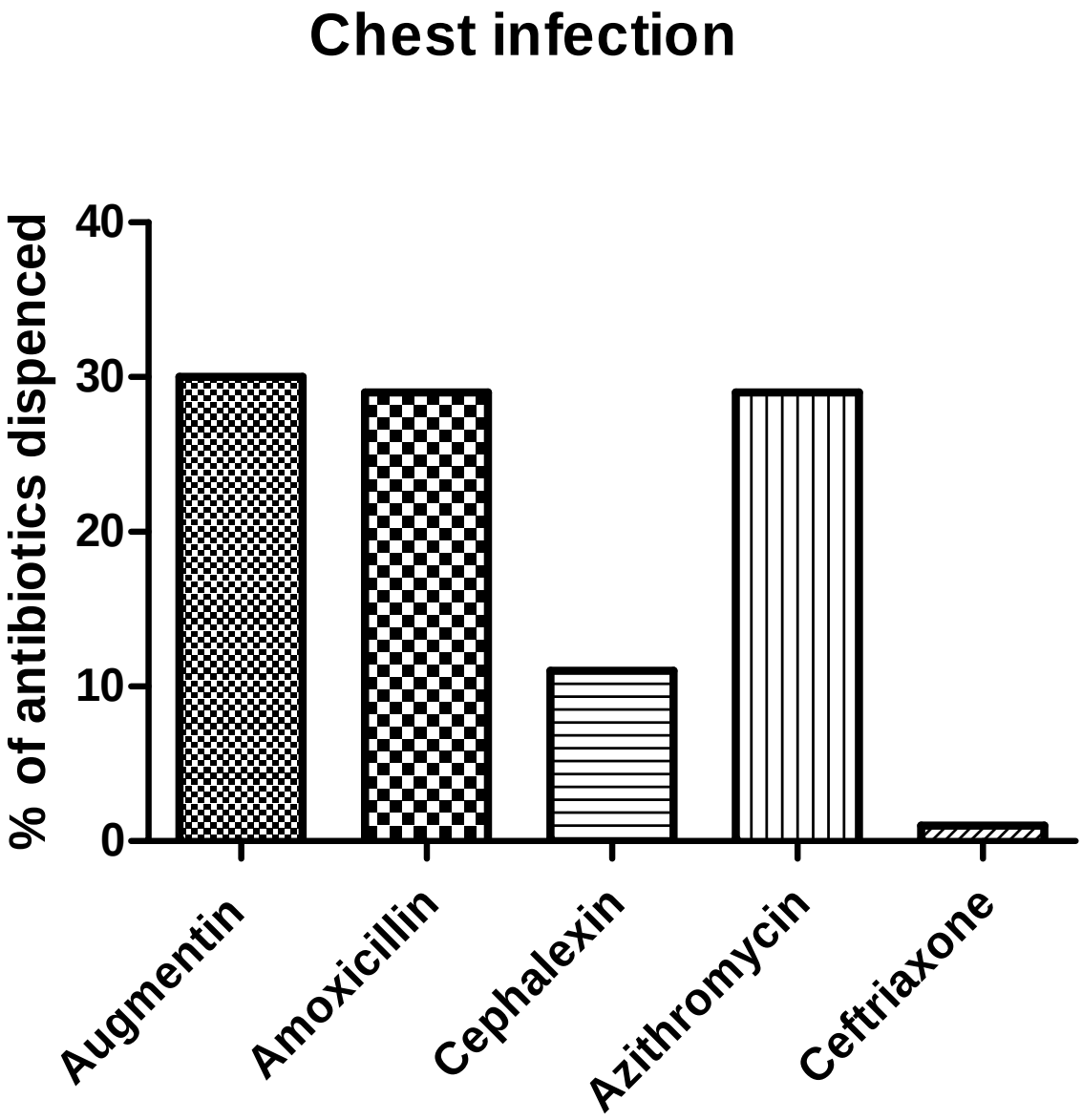


Figure7: antibiotics dispensed in response to patient/customer request in chest infection

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Discussion

This is the systematic cross sectional study showing the improper dispensing of antibioticsin pharmacies of Basra, Iraq, with neither aprescription nor a diagnosis from a physician.In the present study, we observed that antibiotic could be easilyobtained without a medical prescription or an evidencebasedindication. scenarios represent prevalentdiseases as sore throat , chest infection , acute sinusitis , UTI ,otitis media and diarrhea was used in the sample . most pharmacists were more likely to provide antibiotics. Moreover, pharmacists dispensedbroad spectrum antibiotics without even beingrequested by the patient (level one demand) this could be caused by , the careless of pharmacist toward the danger of Antibiotic ,Lack of commitment of the pharmacist in his pharmacy place, and the low connection toward the ethics of pharmacy , lead to this condition of antibiotic dispense without prescription. Excessive use of antibiotics, including use for inappropriate conditions, represents a problem in the world [6,7].

Amoxicillin/clavulanate was the most commonly prescribed antibiotic for presumed cases of sore throat, acute sinusitis, chest infection , and otitis media this may be due to the fact that (Augmentin®) is a broad-spectrum antibacterial that has been available for clinical use in a wide range of indications for over 20 years Amoxicillin/clavulanate was developed to provide a potent broad spectrum of antibacterial activity, coverage of β-lactamase-producing pathogens and a favourable pharmacokinetic/pharmacodynamic (PK/PD) profile. These factors have contributed to the high bacteriological and clinical efficacy of amoxicillin/clavulanate in respiratory tract infection over more than 20 years also the drug have a good safety profile and well tolerated [8] .AdditionallyMost pharmacists feel comfortable in providing amoxicillin for pregnant women due to its safty profile . Also augmentine® have the highest rated sales in Basra in compare with

other pencillins due to high marketing activity, ciprofloxacin was given frequently for presumed UTI this may be attributed to interesting of pharmacist with the bactericidal activity of ciprofloxacin against activity against a wide range of gram-negative and gram-positive microorganisms that considered the major causative organism for UTI regardless to side effect of such drug and microbial resistance that may develop[9]

Metronidazole frequently prescribed for diarrheathat may be due to thought of pharmacist that all diarrhaea cases are caused by protozoal infection and not taking into account other condition that may cause diarrhea whether it is parasitic infection , viral or fungal infection. (<10 %)of representative pharmacies provide information about drug interaction which may lead to a greater risk.About 35% of representative pharmacies advice the patient to see the physician if not improved here the pharmacists deal with this situation professionally and in most cases they felt the moral responsibility to seek a physician opinion , educate the patient about the danger of using unauthorized antibiotic. . (15-30)% of pharmacies provide information about duration of treatment while moderate to high percentage (50- 99) % of pharmacies take into account age of patient ,associated symptoms , severity of disease , pregnancy status and instruct the patient about use of the drug before prescribing antimicrobial agent .

The high observed rate of antibiotic sales without a prescription in Basra could be explained by several factors: lack of enforcement of the national regulations, suboptimal compliance to the code of ethics and professionalism among community pharmacists, and financial interests of community pharmacists .in a cross sectional studydone at 2011 in Riyadh,Saudi Arabia the results were similar to our finding , high percentage of their pharmacies dispense antimicrobial agent without medical prescription with ciprofloxacin was given frequently for presumed UTI in a childbearing age women without verifying the pregnancy status before dispensing this antibiotic which is FDA class C agent in pregnancy [5]. While A study performed in Brazil, reported that 58% of the 107 approached pharmacies sold an

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antibiotic without insistence from the collaborators. The same study also reported that when the antibiotic was denied and the collaborators insisted, the sale of antibiotics increased by 16% [10].

A first step to change the situation was the institution of a federal regulation that prevents antibiotics from being sold without a medical prescription. However, other efforts should be taken because most pharmacies do not adhere to the regulation. One possible strategy might be to create health education programs about the dangers of misusing antibiotics that are directed both to the population as well as to the pharmacists and attendants. Preventing the sale of unprescribed antibiotics can be a way to inhibit both bacterial resistance, a worldwide health problem.

Conclusion

This study's results showed that antibiotics are frequently dispensed from community Pharmacies in Basra,Iraq without appropriate prescriptions. The majority were dispensed for conditions that are generally viral and/or self limiting, thus are inappropriate indications for antibiotic prescribing. These findings highlight the need for better enforcement of pharmacy laws. Raising public awareness of the consequences of antibiotic misuse can help change the beliefs that result in thewidely-spread practice of self-medication

References

1- Roque F, SoaresS ,Breitenfeld L, Figueiras A , et al . Influence of community Pharmacists 'attitudes on antibiotic dispensing behavior : A Cross- sectional study in Portugal .Clinical Therapeutics/Volume 37, Number 1, 2015

2- Bahnassi A , A qualitative analysis of pharmacists' attitudes and practices regarding the sale of antibiotics without prescription in Syria , Journal of Taibah University Medical Sciences (2014) article in press.

3- Cheaito L,AziziS ,Saleh N , Salameh P , Assessment of self-medication in population buying antibiotics in pharmacies: a pilot study from Beirut and its suburbs , International Journal of Public Health. 2014, 59(2):319-327 .

4- BernabéMu˜noz E, Dorado M,, Guerrero J, Martínez F The effect of an educational intervention to improve patient antibiotic adherence during dispensing in a community pharmacy , AtenciónPrimaria 2014;46(7):367--375.

5- Bin Abdulhak AA, Altannir MA, Almansor MA, Almohaya MS, et al.Non prescribed sale of antibiotics in Riyadh, Saudi Arabia: a cross sectional study. BMC Public Health. 2011 Jul 7;11:538

6- Khalil R. Turning the implausible to the plausible:towards a better control of over the counter dispensing of antibiotics in Egypt. Value Health 2012;15:A1–A256. ISPOR 17th Annual International Meeting,Washington DC, USA. June 2–6, 2012

7- Radyowijati A, Haak H. Determinants of antimicrobial use in the developing world. Child Health Res Project Spec Rep 2002;4(1)

8- Anthony R. Kaye C, Poupard J , Pypstra R et al, Augmentin® (amoxicillin/clavulanate) in the treatment of community-acquired respiratory tract infection: a review of the continuing development of an innovative antimicrobial agent Journal of Antimicrobial Chemotherapy (2004) 53

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9- Toval F, Schiller R, Meisen I, Putze J, et al.Characterization of urinary tract infection-associated Shiga toxin-producing Escherichia coli. Infect Immun. 2014 Nov;82(11):4631-42

10- Volpato DE, de Souza BV, Dalla Rosa LG, Melo LH, Daudt CA, Deboni L (2005) Use of antibiotics without medical prescription. Antibiotics and Medical Prescription.Brazilian Journal of Infectious Disease 9: 288-291