

Survey on Antibiotic Practices in Chittagong City of Bangladesh

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Abstract

We aimed to determine the amount of antibiotic prescribed by physicians and also sold by pharmacies in Chittagong city of Bangladesh by using a cross sectional survey. Patients, physicians, pharmacies and prescriptions based study was conducted in May 01, 2012 to May 30, 2012. A total of 118 prescriptions were collected and 82 local pharmacies were selected for data collection about daily sales of antibiotics. It was evident that 69.49% of the prescriptions contained antibiotics. Azithromycin and cefixim were found to be the most preferred antibiotics in physician's prescriptions survey. On the other hand, it was evident from the pharmacy survey (without prescription) selling rates of azithromycin and ciprofloxacin were more predominant. The diseases which were seen in the studies include cough, typhoid, diarrhea, nausea, chronic UTI, RTI, fever and rhinitis. The result of the present survey indicates that antibiotics are widely and inappropriately practiced without following standard guidelines. This is an alarming condition in the health sector of Bangladesh and therefore, the respective authority should take necessary steps to minimize the harmful effects of antibiotics.

Key words: Antibiotic, Chittagong city, cross-sectional study, pharmacies, prescriptions, antibiotic resistance.

Introduction

Bangladesh is a country at the southern edge of the Asian continent, covering an area of 142,300 sq. km (Ruhul *et al.*, 1999). India and Myanmar are the neighbouring countries and in the south is the Bay of Bengal. Health and education levels remain relatively low, although they have improved recently as poverty (31% at 2010) levels have decreased (en.wikipedia.org). Studies carried out in Bangladesh, India, Thailand and Tanzania estimate that 24% to 50% of the total pharmaceutical budget is spent on antimicrobial agents (Hossain *et al.*, 1982; Gustafsson *et al.*, 1981; Anonymous, 1980; Ratanawijitasin, 1996). Antibiotic sales without medical prescriptions have been observed in many countries (Abdulhak *et al.*, 2011). There is a clear relationship between the amount of a given antibiotic used and the event of bacterial resistance (Wolff, 1993). Resistance to commonly used antimicrobial drugs is remarkably high in countries where antibiotics are not restricted (O'Brien, 1992). This is a major public health concern worldwide, especially in developing countries where higher rates of

resistant bacterial infections persist (Okeke *et al.*, 2007; Ojo *et al.*, 2008). Antibiotic resistance in developing countries causes a catastrophic increase in the medical and socio economic burden of untreatable infectious diseases (Van Duong *et al.*, 1997). The antibiotic prescribing rate of physicians is increasing day by day. They give antibiotics to the patients for various reasons pleasing the patients. Patients can get antibiotics easily from pharmacies without prescription. So, misuse of antibiotics is increasing. The problem is too much in the rural areas of Bangladesh (Fagbule *et al.*, 1995). Over prescribing and inappropriate prescribing are very common in the country due to unethical practices of both health professionals and drug manufacturers (Dong *et al.*, 1996; Green halgh, 1987; Hardon, 1987). A high proportion of patients in some developing countries are treated by untrained practitioners simultaneously with oral and injectable antibiotics administered with contaminated needles and syringes. There is already enough evidence of growing resistance to antimicrobials in Bangladesh resulting from misuse of antibiotics (Dore *et al.*, 1997; Fedorak *et al.*, 1997; Nahar

et al., 2004). This exacerbates the existing problem of inappropriate use of antibiotics that leads to an increase in treatment cost, drug adverse effects, and antibiotic resistance among bacteria (Abdulahak *et al.*, 2011). In our present study, we aimed to determine the amount of antibiotic prescribed by physicians and also sold by pharmacies in Chittagong city of Bangladesh by using a cross sectional survey based study.

Materials and Methods

The study sites were located in Chittagong city corporation area. Patients, physicians, pharmacies and prescriptions based cross-sectional study was conducted during May 01, 2012 to May 30, 2012. From every patient, single prescription was collected and single form was also prepared for every single pharmacy shops to record amount of antibiotics sales per day.

Data were collected from various prescriptions and the local pharmacy shops to carry out the survey. Total 118 prescriptions were collected directly from the patients of physician chambers and 82 local pharmacy shops were selected from different locations for data collection about daily selling of antibiotics.

Simple statistical method (Bar diagram) was used to calculate the data and finally expressed in percentages.

Microsoft Office Excel is one of most widely used application to calculate and present data. We used Microsoft Office Excel 2003 to calculate and present the data.

This survey study was logistically supported by the Department of Pharmacy, International Islamic University Chittagong. The human subjects involved in this study did not use any hazardous agents and samples were not collected from them.

Results

This study revealed that antibiotics were seen at 69.49% of total prescriptions. Highest percentage of azithromycin (30.49%) and lowest percentage of cefradin (12.20%) were prescribed (Figure 1). The percentage of various diseases in which antibiotics were prescribed, for typhoid it was (30.49%), for cough (31.71%), and lowest percentage (3.66%) for RTI (Figure 2). Patients had come twice due to the same disease who did not complete full course of antibiotics and or stop taking medicines when symptoms disappear. From the local pharmacy shops (without prescription) survey, it was evident that azithromycin was sold at the highest percentage (22.65%) and cefradin was found at lowest percentage (9.67%) (Figure 3).

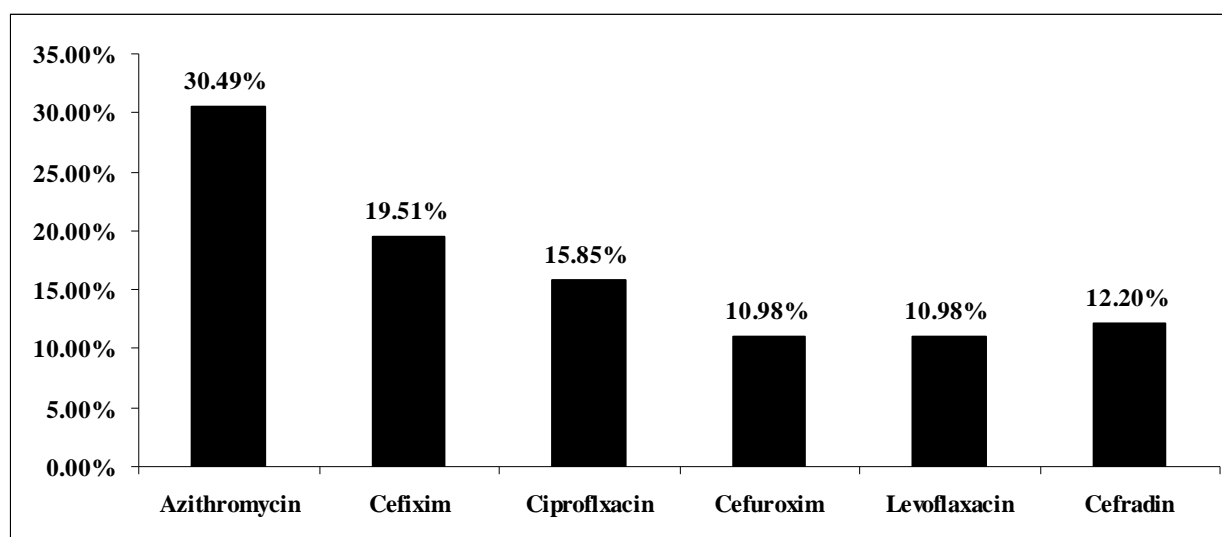


Figure 1. Selected responses from the physician survey (percentage of various antimicrobial agents prescribed by physicians).

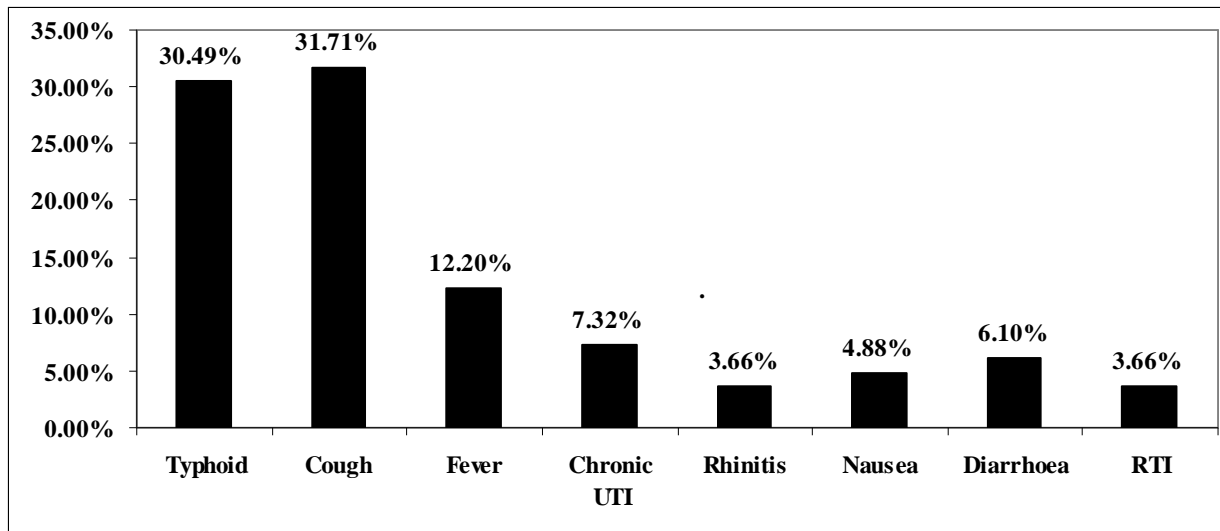


Figure 2. Percentage of diseases where antibiotics were prescribed

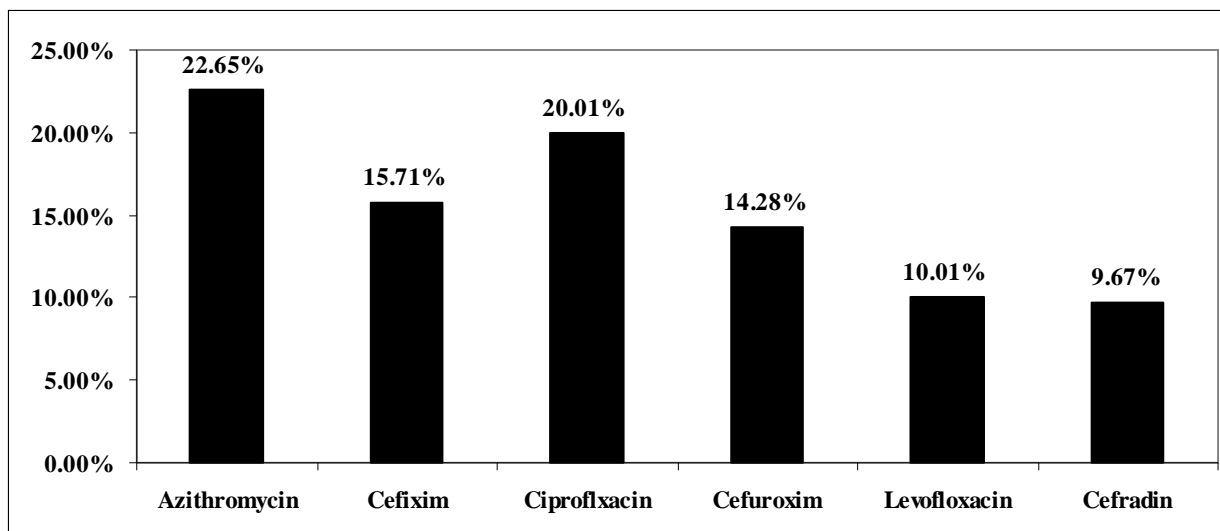


Figure 3. Selected responses from pharmacy shop survey (percentage of various antibiotics which are sold by pharmacies).

Discussion

The use of antibiotics in Chittagong city as well as in Bangladesh is too much as compared to other developing countries. On other hand, it is shown that receiving rate of antibiotics without prescription is increasing day after day (Wenzel *et al.*, 1994). There are some of reasons for misuse of antibiotics such as lack of proper retail pharmacies, lack of retail pharmacists, inappropriate prescribing pattern, lack of proper monitoring system, lack of knowledge on antibiotics and therapeutics, folk beliefs and traditions on antibiotic use, lack of trust in or delayed

lab results, desire to meet patient's demand, fear of clinical failure, desire to stay on safe side, marketing influences by medical representatives, etc. The unnecessary prescription of antibiotics seen in industrialized nations has also been documented in many developing countries particularly in cases of acute infertile diarrhea and viral respiratory infections (Bojaloil *et al.*, 1994).

Today's physicians spent very little time to know from patients more about the diseases or no time to wait for lab results or no time to see report well. So, physicians use antibiotics more in their prescriptions (Hardon *et al.*,

1987; Dong *et al.*, 1999). So it was also a type of misuse. This rate is increasing day after day with increasing population like other developing countries. In pharmacy shops of Bangladesh where no retail pharmacists are available, patients can get antibiotics or any medicine without any prescription. So, self medication is increasing as there is no one to see it (Wenzel *et al.*, 1994; Dong *et al.*, 1999; Abosede, 1984).

Patterns of antibiotic prescribing, availability and dispersing in Chittagong are very crucial at present. The existing systems should be reformed in order to ensure proper use of antibiotics including other therapeutic agents in the country. The following recommendations should be suggested based on the present study such as, proper monitoring system should be implemented, retail pharmacy services should be run properly by retail pharmacist, physician should take extra precautions regarding practices of antibiotic, patients awareness should be increased at national level.

Conclusion

This study confirms the irrational prescribing of antibiotic and consumes in this city. Therefore, there is a need strict enforcement and adherence to existing regulations regarding antibiotic practices. To overcome these problem, public awareness about the worldwide existing problems of antibiotic resistance should be increased and drug adverse effects should be implemented the and physician should also to a precautions during prescribing antibiotics.

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