



Over-the-counter sale of antibiotics from pharmaceutical shops in Pune

Varsha Mahesh Vaidya^{1*}, Anagha.V.Raul.², Sarthak Aeron³

1. Associate professor, 2. Assistant Lecturer, 3. MBBS student
Department of Community Medicine, Bharati Vidyapeeth Medical College, Pune.

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*Corresponding author:

Email : drvarshavaidya@yahoo.co.in

ABSTRACT

Antibiotic resistance is a rising global problem rendering actions of Anti Microbial Agents to be ineffective. Incidence is higher in developing countries due to lack of regulatory policies thereby encouraging over the counter (OTC) sale of antibiotics. The study was planned to assess the extent of over the counter sale of antibiotics without prescription and the socio-economic and demographic factors associated.

A cross sectional study was carried out in randomly selected 5 medical shops in Pune city, distributed over 5 different localities. 30 Individuals per each pharmacy were randomly selected. Thus the sample size was 150. The data was collected with the help of pre tested structured questionnaire. 45.34% individuals purchased antibiotics without prescription. Statistically significant difference was observed in OTC antibiotics purchase with respect to gender, locality, Type of house and Type of ailment. No significant difference was observed in OTC antibiotics purchase with respect to type of antibiotic. 45.33% took full treatment course and only 22% were aware of the importance of completing full course treatment.

Strict regulations for discouraging over the counter sale of antibiotic should be implemented to prevent the rising trend of antimicrobial resistance in the country.

INTRODUCTION

The discovery of antibiotics in the 20th Century marked a watershed in the treatment of infections. The ability to treat the serious infections of the pre-antibiotic era stimulated advances in medical fields and enlarged the scope of medical care. But their overuse, underuse and misuse [2] has resulted in development of resistance. The rapid emergence of resistance to antibiotics amongst pathogens generates visions of the 'potential post-antibiotic era threatening present and future medical advances' (Wise 2008). The same has been realized by the WHO, because of which, World health day's topic of concern for the year 2011 was "drug resistance" with motto "no action today, no cure tomorrow" [3].

Community awareness of the issues involved in antibiotic therapy is poor and this is compounded by over-the-counter availability [1]. Over-the-counter dispensing without prescription by the pharmacies has led to development of highly resistant bacterial strains like 'super bug' [4]. To understand community awareness and behavior, a cross sectional study was planned in the Pune city with the aim of assessing over the counter

sale of antibiotics from medical shops focusing on the extent, demographic and socio economic determinants of this practice.

MATERIAL AND METHODS

A cross sectional study with the help of structured questionnaire was conducted in 5 randomly selected medical shops in Pune city, distributed over 5 different localities. The study was conducted between May 2011 to October 2011. Approval from institutional ethics committee was obtained before starting the study. First 30 Individuals over 18 yrs of age purchasing antibiotics per pharmacy were interviewed after obtaining informed consent. 5 such pharmacy shops were randomly selected one each from north, south, east, west and centre of Pune city. Total 30 individuals from five sites were interviewed. Thus Sample size was 150. Tool used for data collection was pre tested structured questionnaire. The questionnaire had two parts.

First part consisted of questions on demography, socio-economic status of the respondents, second part consisted of questions on knowledge, attitude and practice of antibiotic

purchase and chief complaint, signs and symptoms for which antibiotics were purchased with or without prescription

Inclusion criteria: First 30 individuals above 18 years attending selected pharmaceutical shop on the day of visit.

RESULTS

The main aim of the study was to bring forward the flaws and irrational practice of availability of over the counter purchase and sale of antibiotics leading to widespread development of antibiotic resistance. Our study demonstrates that about 45.34% of patients purchased antibiotics over the counter. The prevalence of over the counter purchase of antibiotics was 54.54% in individuals residing in Pucca house as against 26.66% and 47.05% residing in chawls and slums respectively. Only 22% of individuals were aware of the importance of completing full course treatment of antibiotics. Moreover, 6.6% individuals reported that they intentionally stopped medication on the ablation of symptoms, against the doctor's advice. The

demographic and behavioral characteristics of antibiotic purchase are summarized in the Table no. I

DISCUSSION

Surveillance of antimicrobial use in the community for developing countries is difficult because no databases are available and antibiotics can be purchased over-the-counter [5,6] Hence this study was undertaken to find out extent of over the counter purchase of antibiotics in Pune. In this representative sample of community pharmacies in Pune, we observed that antibiotic could be easily obtained without a medical prescription or an evidence-based indication. In our study 45.34 % purchases were over the counter as against 53% and 31% in study conducted by Nalini G. K. Deshpande et al [7,8] respectively. The prevalence of OTC purchase observed in our study is also quite high and needs to be taken seriously.

Statistically significant difference was observed in OTC antibiotics purchase with respect to gender. Our study indicates

Table 1. Demographic and behavioral characteristics of antibiotic purchase.

Characteristics	N	With prescription (%)	Without prescription (%)	df	Chi Square	P value
Gender						
Male	84	37(44.04)	47(55.95)	1	8.68	0.003**
Female	66	45(68.18)	21(31.81)			
Locality						
Katraj	30	19(63.33)	11(36.67)	4	7.963	0.09*
Dhankawadi	30	13(43.33)	17(56.67)			
Kothrud	30	21(70)	09(30)			
Karvenagar	30	12(40)	18(60)			
Wanawadi	30	17(56.66)	13(43.34)			
Type of house						
Pucca House	88	40(45.45)	48(54.54)	2	9.36	0.009**
Chawl	45	33(73.33)	12(26.66)			
Slum	17	09(52.94)	08(47.05)			
Type of Antibiotic						
Fluroquinolones	44	25(56.81)	19(43.18)	3#	2.26	0.520 NS
Penicillins	52	28(53.84)	24(46.16)			
Macrolides	31	14(45.16)	17(54.84)			
Sulphonamides	4	3(75)	1(25)			
Cephalosporins	9	6(66.66)	3(43.34)			
Others	10	6(60)	4(40)			
Ailment						
URTI	72	41(56.94)	31(43.05)	3##	8.63	0.034*
GIT	37	25(67.56)	12(32.43)			
Skin	22	6(27.27)	16(72.72)			
UTI	15	8(53.33)	7(46.66)			
Others	4	2(50)	2(50)			

that males were more frequent purchasers of antibiotics OTC than females similar to study conducted by Deshpande et al [8].

This study demonstrates that 54.54% of OTC purchase of antibiotics was significantly higher in individuals residing in pucca house as against 26.6% in chawl and 47.05% in slums. A study conducted by P.L Joshi [9] also has reported that this practice was common in upper and lower class which is similar to the finding in our study.

This study observed that 47.99% of the total antibiotics purchased were for Upper Respiratory Tract Infection (URTI) which is a self-limiting condition and nevertheless 56.94% purchases were OTC which is statistically significant. In the study conducted by Ratnakar U.P. et al 75% of Anti Microbial agents were dispensed OTC for URTI, 22.2% in study conducted by Deshpande et al. and 66.7% in study conducted by Nalini G.K [7]

Current study observed that 72.72% of total purchases for skin ailments was OTC and 32.43% for GIT complaints

According to study by Ratnakar U.P. [10] Amoxicillin was the major drug (31.7%) being sold OTC. In our study, 52 individuals out of 150 opted for penicillin group of medicine out of which 24 were without prescription. Similarly main antibiotic used in self-medication was penicillin group in the study conducted by Nalini G.K. [7] Antibiotic resistance, a global concern, is particularly of concern in developing nations, including India, where the burden of infectious diseases is high and healthcare spending is low. [11]

There is currently no functioning National Antibiotic Policy or a National policy to contain antimicrobial resistance in India. The policy published in 2011 has been put on hold due to non implement ability of major recommendations. [12, 13] There is no restriction on OTC dispensing of antibiotics without prescription. Any antibiotic, including higher- end ones; can be purchased OTC without prescription. [10,14]. The availability of the more complex drugs groups such as antibiotics without prescriptions is a source of great concern. Moreover, the practice of self medication often has many adverse effects and can lead to many problems, including the global emergence of Multi-Drug Resistant pathogens, drug dependence and addiction, masking of malignant and potentially fatal diseases, hazard of misdiagnosis, problems relating to over and under dosaging, drug interaction and tragedies relating to the side effect profile of specific drugs.

CONCLUSION:

High prevalence of over the counter sale of antibiotics even for simple conditions like Upper Respiratory Tract Infection (URTI) was observed. Tendency was more in males, and amongst high socioeconomic status. Community awareness and education regarding the implications of self medication should be done. Strict regulations for discouraging OTC are needed to prevent antibiotic resistance. Since this was a interview based study it had limitation of personal bias.

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