

₹ 200

ISSN - 2249-555X

Volume : 1

Issue : 8

May 2012



Journal for All Subjects

www.ijar.in

Listed in International ISSN Directory, Paris.



ISSN - 2249-555X

Indian Journal of Applied Research

Journal for All Subjects

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Various aspects of antimicrobial utilization in OPD of a medical college hospital

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ABSTRACT

Study was conducted in the OPD of General Hospital Sangli, Government Medical College; Miraj (Maharashtra). A total of 2002 prescriptions were screened from 89 days spread over a period of one year (0.02% of total patients). 47.95% were found containing antimicrobials. 14.38% were appropriate and cost effective; 9.58% were appropriate but not cost effective and rest were inappropriate. The cost on antimicrobials prescribed to these patients was compared with the cost of standard drug treatment regimes. Upper respiratory tract infections were most common indication for antimicrobials followed by chronic obstructive pulmonary disease. Study concludes that there is % wastage of money on inappropriate use of antimicrobials in OPD patients.

Keywords : Antimicrobial utilization, GHS Sangli, OPD patients

Introduction

Considering the rate at which the antimicrobials are pouring in the pre-existing pool and the amount of time a busy clinician can devote to serious reading of some genuinely conducted controlled clinical trials on the drug, he is bound to rely more on the information provided by the manufacturers through their representatives, which is most of the times misleading and biased¹. This information in the long run becomes a part of the personal experience of the clinician.

Fact is that practicing doctors relying emphatically on personal experiences rather than actual knowledge of the drugs based on corroborative evidences, for therapeutic decision making are not likely to prescribe drugs properly². So continuous monitoring of prescribing habits of doctors and utilization pattern of drugs is not only necessary but should be mandatory. As per WHO definition it is a study of "Distribution, prescription and use of drugs in society, with special emphasis on resulting medical, social and economic consequences"².

Pharmacoeconomics of antimicrobials

As the spectrum of antimicrobials has expanded, the inherent differences in the spectrum now overlap to the point at which numerous agents can be considered equally efficacious for a number of clinical situations, the drug of first choice has become the drug of choice³.

Besides, concerns over the rising cost of healthcare have brought the issue of cost effective prescribing to the top of the national health agenda. Indeed the focus of identifying, measuring and comparing the costs, risks and benefits of various regimes have become one of the primary responsibilities required of physicians³.

The problem that is commonly faced in antimicrobial economic analysis is that, the appropriateness of the therapy is not an all or none phenomenon, which is the case with most of the other groups of drugs. There can be so many antimicrobials that are equally efficacious for a given clinical situation. The therapy which is not cost effective but otherwise appropriate should not be categorized as inappropriate⁴.

Considering these facts the present study was planned to study various aspects of antimicrobial prescriptions in OPD

of General Hospital Sangli, a tertiary care hospital of Government Medical College, Miraj (Maharashtra).

Material and Methods

Collection of data

Permission from Institutional Ethics committee was taken before starting the study. Data from the OPD of the hospital was collected over a period of one year from September 24, 1997 to September 23, 1998. Case papers were screened by sitting in hospital pharmacy. Days for screening were selected randomly. On an average 4 days were selected from every month, if the OPD was closed on the selected day, data was collected on next working day. This way on 46 visits (two days were cancelled because of unavoidable circumstances) data of 2002 patients was collected (sample size 1.77%). As per hospital policy drugs were not dispensed for more than three days except to patients of few chronic disease to whom drugs are dispensed for seven days, so cost of therapy for only 3 days was considered. If the same patient came again he/she was considered a new case.

Formation of Standard Drug Treatment Regimes (SDTRs)

SDTRs were formed for various diseases with the help of standard text books of therapeutics and books of various specialties, standard journals to which the clinicians have access as they are present in the college library, discussion with the faculty of department of Pharmacology and culture sensitivity reports from department of Microbiology. Initially three regimes were formed; out of them the cheapest one with equal efficacy shown by various workers was selected.

Costing of antimicrobials

Acquisition cost of the drugs was found out from the records of drug store of the hospital. Drugs purchased from the month of September 1, 1997 to August 31, 1998 were recorded (including drugs purchased on rate contract, from government undertaking companies, quotation and local purchase) and that of administration items (syringes, needles, infusion set etc.) from surgical store. The average cost of drug acquisition and administration was calculated based on these figures.

Comparing Actual with Ideal Cost

Data was analysed using Microsoft Excel programme. Differ-

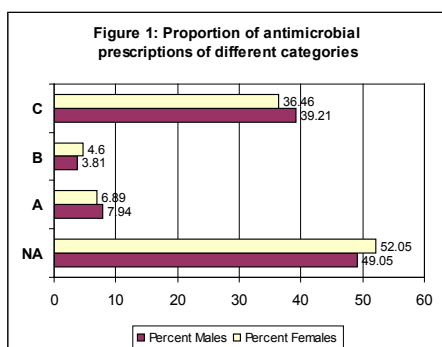
ence between actual and ideal cost of drugs from standard drug treatment regime was found out keeping in mind the objectives. If the ideal drug was available in drug store then the cost was considered based on records of drug store otherwise the cheapest brand from MIMS was considered. All prescriptions were categorized in three broad categories4;

- A. Appropriate and cost effective
- B. Appropriate but not cost effective
- C. Inappropriate (May be because of wrong selection of drug or dose or because antimicrobials were prescribed without indication)

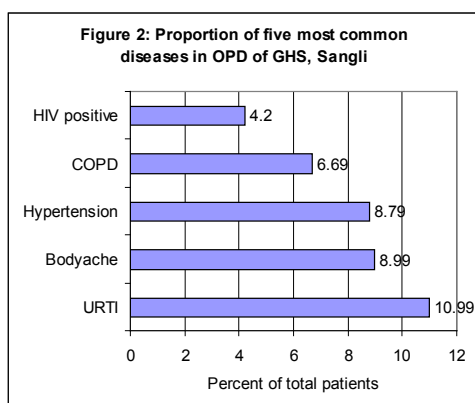
Discussion

During the study period of one year 1,12,997 patients attended the OPD of the hospital with 40,850 males, 47,166 females, 13,823 boys and 11,158 girls (62.94% males & 37.06% females). An estimated Rs. 6,95,609.53 were spent on antimicrobials prescribed to them. As per standard drug treatment regimes, only Rs. 1,85,586.27 should have been spent. That means an unnecessary expenditure of Rs. 5,10,023.53 or 73.32% wastage of money on antimicrobials. 47.95% of total numbers of patients were prescribed antimicrobials with almost equal proportion of males and females (51.8% & 48.2% respectively).

As is shown in figure 1 (NA- no antimicrobials; A- appropriate and cost effective; B- appropriate but not cost effective and C- inappropriate)



the number of inappropriate prescriptions is very high and this is mainly because of prescription of antimicrobials where they are not indicated. If we see five most common diseases which constitute 44.16% of total patients attending OPD (Figure 2), we get an idea about why the percentage of antimicrobial prescriptions and inappropriate antimicrobial prescriptions is so high.



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Patients with upper respiratory tract infection constituted 20.83% of total patients and 99.91% of these patients were prescribed antimicrobials. Most of the clinicians agree that the role of antimicrobials in upper respiratory tract infections is controversial and some studies suggest that antimicrobials in upper respiratory tract infections are more harmful than beneficial except in the age group of 6-9 years where they are indicated for the purpose of prophylaxis against rheumatic fever. Even in these patients phenoxymethyl penicillin should be given for 10 days, as studies suggest that other drugs are either less effective or not effective at all5. Number of patients between 6-9 years of age is just 4.54% of total patients of upper respiratory tract infections (1.04% of total antimicrobial prescriptions) in our study.

Chronic Obstructive Pulmonary Disease forms the next largest group of antimicrobial prescriptions (9.37% of total antimicrobial prescriptions), 67.16% of total patients of chronic obstructive pulmonary disease patients received antimicrobials. Studies suggest that the role of antimicrobials in chronic obstructive pulmonary disease is controversial. Patients who turn up with acute exacerbation and which are suggested to be benefited, forms only 2.99% of total chronic obstructive pulmonary disease patients of our study.

Human immune deficiency virus positivity in itself is not a disease which needs antimicrobials but when these patients catch some infection that needs to be treated seriously and rigorously. In our study human immune deficiency virus positive patients with or without any complaints form 7.5% of antimicrobial prescriptions, 85.71% of them received antimicrobials even though only 16.67% of them presented with some complaints like pulmonary tuberculosis, generalized lymphadenopathy, enteropathy, gastritis and diarrhea.

In HIV positive patients who were prescribed antimicrobials, 50% were prescribed metronidazole, 9.52% tetracycline and 4.76% received both metronidazole and tetracycline. Other drugs were antitubercular drugs, septran and norfloxacin in decreasing order. Studies suggest that except antiretroviral drugs, antimicrobials do not have any role to play in human immune deficiency virus positive patients if they do not have any infection.

One problem needs special attention. Studies have shown that neuropathy with metronidazole is a very serious problem. Nerve conduction is shown to be affected as early as two weeks of treatment with metronidazole, by the time clinical manifestations develop the damage is irreversible6. This becomes more important in HIV positive population as neurological manifestations are one of the leading symptoms of acquired immune deficiency syndrome patients. Metronidazole prescription to these patients will be more detrimental than beneficial as this would lead to early appearance of neurological symptoms which would decrease the asymptomatic period of these patients.

The study concludes that antimicrobial prescriptions in OPD of General Hospital, Sangli are grossly inappropriate and need complete review.



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