

Evaluation of Generic and Branded Drugs on Cost Effective and Cost Benefit Analysis: A Tertiary Care Hospital

Anand Baburao Jain*

Associate Professor, Departments of Pharmacology,
P K Das Institute of Medical Sciences, Palakkad, Kerala, India.

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*Correspondence to:

Dr Anand Baburao Jain,
Associate Professor,
Departments of
Pharmacology,
P K Das Institute of
Medical Sciences,
Palakkad, Kerala, India.

ABSTRACT

Background: According to Indian pharmacopoeia drug includes all medicines for internal or external use of human beings or animals and all substances intended to be used for or in the diagnosis, treatment, mitigation or prevention of any disease or disorder in human beings or animals including preparations applied on human body for the purpose of repelling insects like mosquitoes.

Materials and Methods: A total of 76 prescriptions of both outpatients and inpatients diagnosed with enteric fever and were given antibiotics were analyzed. These prescriptions were analyzed for cost minimization analysis as intravenous ceftriaxone is the most prescribed antibiotic for the patients of enteric fever.

Results: All patients were above 15 years of age. Minimum age was 20 years and maximum age was 66 years. Paediatric patients were not included in the study as the doses are variable in pediatric age group. Maximum number of patients were seen between age group of 35-45 years and minimum patients were seen between age group of more than 60-70 years.

Conclusion: As recommended by Medical council of India in code of ethics regulations 2002 all physicians should make a conscious effort to prescribe drugs by their generic names only.

KEYWORDS: Pharmacology, Antimicrobial Drug, Cephalosporin.

INTRODUCTION

According to Indian pharmacopoeia drug includes all medicines for internal or external use of human beings or animals and all substances intended to be used for or in the diagnosis, treatment, mitigation or prevention of any disease or disorder in human beings or animals including preparations applied on human body for the purpose of repelling insects like mosquitoes. Such substance intended to affect the structure or any function of the human body or intended to be used for the destruction of venom or insects which causes disease in human beings or animals as may be specified from time to time by the central government by notification in the official gazette.¹ A major chunk of healthcare spending is used for buying pharmaceutical products. With improvements and advances in healthcare sector this spending is expected to rise exponentially. Part of it is due to demographic changes and part of it is due to better diagnosis and screening of conditions like hypertension and diabetes etc.² These changes are also the concern of governments around the globe as it is the responsibility

of the government to contain the cost of drug bill. In many countries, like Australia, governments do economic evaluation before a drug is approved for reimbursement.³ The actual cost of drug is not much important in this respect and what important is value of drug therapy which deals with not only the cost of the drug but benefits of its use. Pharmacoeconomics deals with this aspect of the drug use.⁴ In a developing country like that of India where ignorance and poverty is rampant it becomes more relevant to emphasize the importance of pharmacoeconomics while prescribing drugs. Given the fact that prescribing relatively expensive drugs is responsible for inability of taking complete treatment by patients or sometimes they must continue taking treatment at the cost of other essential needs of life. This becomes all the more important in treatment of acute life-threatening conditions like meningitis, encephalitis, enteric encephalopathy and acute severe asthma etc.⁵ Prescribing generic drugs can be one of the important steps towards making the prescription

an affordable one. World health organization defines generic drug as “a pharmaceutical product, usually intended to be interchangeable with an innovator product, that is manufactured without a license from the innovator company and marketed after the expiry date of the patent or other exclusive rights”.⁶ Food and drug administration of USA defines a generic drug as “A generic drug that is identical—or bioequivalent to a brand name drug in dosage form, safety, strength, route of administration, quality, performance characteristics and intended use”.⁷ Though by definition generic drugs are equivalent to branded drugs in all respects including efficacy, safety, strength and quality many physicians are reluctant to prescribe these drugs because they are usually thought to be inferior to branded drugs.⁸

Other factors responsible for prescribing branded drugs are ignorance of difference of cost, unethical practice of giving gifts to doctors by pharmaceutical companies, peer pressure from other popular physicians and lack of quality control in some cases of generic drugs.⁹ To encourage prescription of generic drugs by treating physicians MCI in its states “Every physician should, as far as possible, prescribe drugs with generic names and he/she shall ensure that there is a rational prescription and use of drugs.”¹⁰ This current study consists of 76 patients who were diagnosed with enteric fever and in whom intravenous ceftriaxone was prescribed. Three brands of most prescribed ceftriaxone injections were chosen to analyze cost-effective and cost benefit analysis. My study concluded that there was a major difference of prizes between generic and three most prescribed brands of the same drug. Prescriptions of branded drugs were responsible for rise in the cost of complete treatment and this was responsible for incomplete treatment taken by many patients.

MATERIALS AND METHODS

This was a prospective observational study conducted in the department of Pharmacology, P K Das Institute of Medical Sciences, Palakkad, Kerala, India in collaboration with the Medicine department. A total of 76 prescriptions of both outpatients and inpatients diagnosed with enteric fever and were given antibiotics were analyzed. These prescriptions were analyzed for cost minimization analysis as intravenous ceftriaxone is the most prescribed antibiotic for the patients of enteric fever. Top three of the commonly prescribed branded ceftriaxone were compared with generic ceftriaxone and their cost difference and whether patients have taken complete treatment or not were analyzed. The cost of most prescribed branded ceftriaxone was taken from the printed maximum retail price printed on the injections. The prices of the generic versions of these antibiotics were obtained from the official price list of generic medicines put up by the department of pharmaceuticals, government of India.

RESULTS AND DISCUSSION

Total of 76 patients who were diagnosed to be having enteric fever, out of which 52(68.4%) were males and 24(31.6%) were females [Fig.1]. All patients were above 15 years of age. Minimum age was 20 years and maximum age was 66 years. Paediatric patients were not included in the study as the doses are variable in pediatric age group. Maximum number of patients were seen between age group of 35-45 years and minimum patients were seen between age group of more than 60-70 years.

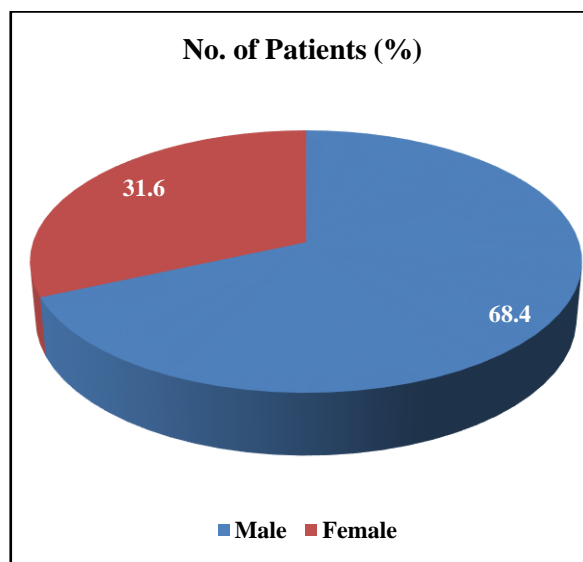


Fig. 1: Shows the Distribution of sex.

Five most used branded drugs were analysed. For the purpose of simplicity these brands were re-named as Brand V, Brand W, Brand X, Brand Y and Brand Z. Whereas generic ceftriaxone 1gm was re-named as Brand G. Out of these 76 patients 12 patients were prescribed brand-V, 21 patients were prescribed brand-W, 09 patients were prescribed brand-X, 13 patients were prescribed brand-Y, 14 patients were prescribed brand Z and 07 patients were prescribed brand G. The dose of ceftriaxone used in all patients was intravenous ceftriaxone 1 gm BD. The usual duration was 5 days. The patients who were given any dose other than 1gm IV BD or any duration other than 5 days were excluded from the study to bring uniformity to the cost-effective analysis. As the first step towards cost-effectiveness and cost benefit analysis the rates of 1 vial of branded ceftriaxone and generic ceftriaxone were compared. The analysis of the cost of single dose of inj ceftriaxone revealed that the cost of single dose of branded IV ceftriaxone was approximately 3.14% to 200.85% more in comparison with generic IV ceftriaxone. Analysis of cost of 1 day of treatment with IV ceftriaxone 1gm revealed that the cost of generic IV ceftriaxone was less than 200.85% of the branded IV ceftriaxone with highest Maximum retail price and 3.14 % less than brand with lowest maximum retail price. The total duration for

which IV ceftriaxone was prescribed was usually 5 days. After which generally patients were switched to oral antibiotics like cefixime or cefodoxime. The analysis of total cost of treatment of IV antibiotics when compared was significantly more in branded drugs than generic drug. Analysis of complete treatment by injection ceftriaxone for the treatment of enteric fever revealed that there was a significant difference of total cost of complete treatment by branded and generic drugs. While generic drugs costed least (Rs 596/-) brand Z costed the most (Rs 1791). Owing to this huge discrepancy in the cost of treatment between branded and generic drugs many patients who have been started on branded IV ceftriaxone didn't complete the prescribed 5 days of IV ceftriaxone and requested the treating physician to switch over to oral antibiotics. Analysis of whether the patient took complete treatment or not and its relation with whether that particular patient was prescribed either generic or branded drug revealed that maximum number of the patients who discontinued treatment before completion of prescribed course of antibiotics belonged to patients who have been prescribed Brand Z while minimum number of patients who discontinued treatment before completion of prescribed course of antibiotics belonged to patients who have been prescribed generic IV ceftriaxone i.e. Brand G. As the healthcare sector progresses there is definitely going to be an increase in the prescription of drugs. With increase in health awareness and availability of specialists at grass root levels and in small towns more and more non communicable diseases like diabetes, hypertension, autoimmune diseases and rheumatological disorders requiring prolonged treatment are being diagnosed at an early age. Early diagnosis means prolonged treatment and prolonged treatment means increase cost of medications. Pharmacoeconomics deals precisely with this aspect of drug prescription. It not only deals with the actual cost of a drug but its efficacy in treating a disease with respect to its rates. Generic drugs by definition are equivalent to branded drugs in terms of bio-equivalence, strength, safety and efficacy.¹¹ Generic drugs are relatively cheap in comparison with branded drugs. Despite this being the case many treating physicians hardly prescribe generic medicine.¹² Reasons why physicians usually doesn't prescribe generic drugs include Physicians' and sometimes even patients' perception that the cheaper drugs means less effective drugs.¹³ Differences in size, shape, colour and name of the drug may lead to patient confusion, this is specially the case where a patient has already been on a drug since many years like antihypertensive or anti diabetic drugs.¹⁴ And there are sometimes a genuine requirement of continuing one specific brand of a drug like phenytoin when change of brand can lead to difference in bioavailability and consecutively there can be change in serum levels of the concerned drug which is not

desirable.¹⁵ Nonetheless it is important to use generic drugs whenever feasible specially in acute conditions. Use of generic drugs may reduce the cost of treatment. The apprehensions of the patients can be reduced by educating them about the possibility of them receiving medications that look, taste or may be named differently but contain the exact same medication. In India there is no national health service hence payment for medical care is mainly from out-of-pocket spending for majority of population. As per a survey 90% of population purchase medicines through out-of-pocket payments making medicines largest family expenditure item after food. Medicines account for 20-60% of health spending in developing and transitional countries, compared with 18% in countries of the organizations for economic co-operation and development. Health care costs are more increasing day by day and 63 million people are faring poverty every year due to health care costs.

CONCLUSION

These findings suggest that, as recommended by Medical council of India in code of ethics regulations 2002 all physicians should make a conscious effort to prescribe drugs by their generic names only. Even if a physician wants to prescribe branded drug then the branded drug which is most affordable should be prescribed. Patients' needs to be educated about the meaning of generic drugs. Although India produces drugs at a low cost but still 1/3rd of population is unable to afford to the health care services due to unawareness about the availability of quality medicines at low cost and due to their low-income occupations. Thus, there is an emergence in the country to make aware the population about the availabilities of government provided schemes and other development programs.

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