

EDITORIAL

PHARMACOECONOMICS AND RATIONAL DRUG THERAPY

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There is a great concern, throughout the world, that health care costs continue to rise, while evidence of improved patient well being is difficult to find in many areas. Health care spending on pharmaceutical products has come in for particular attention, for a number of reasons.¹ All of this focuses on simple drug costs. What should concern us more is the value of drug therapy, which is a function of its benefits as well as its costs. Pharmacoeconomics is a branch of health economics which aims to address this. A quotation from a standard text on economics may explain why economic theory is relevant to drug evaluation. 'Economics is the study of how men and society end up choosing, with or without the use of money, to employ scarce productive resources that could have alternative uses, to produce various commodities and distribute them for consumption, now or in the future, among various people and groups in society. It analyses the costs and benefits of improving patterns of resource allocation.'²

Pharmacoeconomics is a subdivision of health economics and results from that discipline coming of age through consolidation to diversification. It refers to the scientific discipline that compares the value of one pharmaceutical drug or drug therapy to another. It is a sub-discipline of Health economics. A pharmacoeconomic study evaluates the cost (expressed in monetary terms) and effects (expressed in terms of monetary value, efficacy or enhanced quality of life) of a pharmaceutical product.

There are four types of economic evaluation, all of which can be applied to pharmaceutical products. In order of sophistication and level of complexity these are cost-minimisation, cost-

effectiveness analysis (CEA), cost-benefit analysis (CBA), and cost-utility analysis (CUA). The ultimate objective of all four methods is to compare the cost and outcome of alternative regimens, ideally by generating a single index or cost-outcome ratio.³

Economic analyses have become increasingly important in healthcare in general and with respect to pharmaceuticals in particular. Cost minimisation, cost-effectiveness, cost-utility and cost-benefit analyses are a family of techniques used in economic analyses. Cost minimisation analysis is appropriate when alternative therapies have identical outcomes, but differ in costs. Cost-effectiveness analysis is appropriate when alternative therapies differ in clinical effectiveness but can be examined from the same dimension of health outcome. Cost-utility analysis can be used when alternative therapies may be examined using multiple dimensions of health outcome, such as morbidity and mortality. Cost-benefit analysis requires the benefits of therapy to be described in monetary units and is not usually the technique of choice.

It is the ethical duty of all doctors to ensure that limited resources are used to the maximum benefit, and given the expertise of clinical pharmacologists, we may best be able to assist in the area of the rational use of drug therapy-not necessarily with the aim of reducing the overall drug bill, but in establishing the most effective and efficient use of drugs. Rational drug therapy influences a great deal in achieving the goal of drug therapy in health and economic aspects of common peoples of our country. Goals of drug therapy may include: curing a disease (eg infection), relieving symptoms without affecting the underlying condition (eg headache), long-

term prevention (eg hypertension, osteoporosis), replacing deficiencies (eg hypothyroidism), and occasionally therapeutic trials to aid diagnosis.

Prescribers are commonly faced with more than one choice of treatment, including non-pharmacological therapies or no treatment. For example, the management of arthritis might include reassurance, simple analgesia, physiotherapy, non-steroidal anti-inflammatory drugs, disease-modifying antirheumatic drugs, intra-articular steroids or surgery.

Ineffective, inappropriate and economically nonviable use of medicines is often observed in health care throughout the world. This is more often in the developing countries. The need for achieving quality use of medicines in the healthcare system is not only because of the financial reasons with which policy makers and administrators are usually most concerned. Appropriate use of drugs is also one essential element in achieving quality of health and medical care for patients and the community as a whole.

More than 50% of all medicines worldwide are prescribed, dispensed, or sold inappropriately and 50% of patients fail to take them correctly.⁴ WHO defined rational use of drug as “*Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, and the lowest cost to them and their community.*”⁵ In simplest words, rational use means prescribing right drug, in adequate dose for the sufficient duration & appropriate to the clinical needs of the patient at lowest cost.

There are many different factors which affect the irrational use of drugs. If one were to broadly classify the factors, they could be divided into: those deriving from patients, chemists, prescribers, the workplace, the supply system, industry influences, regulation, drug information and misinformation.

Today, rational use of drug/ pharmaceutical is an issue of the utmost importance. The growing concern is not only for promotion of

appropriate use of pharmaceuticals in the health care delivery and its economic considerations but also to provide health related quality of life (HRQL) for a community. There is a need to carefully monitor and censor misleading claims by the pharmaceutical industry. Some degree of irresponsibility on the part of the pharmaceutical industry and lack of vigilance of government agencies underlies the increased popularity of irrational individual drug choice and combinations. There are hundreds of drug companies in our country, and several companies manufacture generic preparations using different brand names. In addition, hundreds of formulations of vitamins, tonics and multi-drug combinations that are manufactured and marketed here. Thus, there is fierce competition amongst drug companies, and they encourage doctors to prescribe branded medicines, often in exchange for subtle favours. Such practices accrue benefits for the company concerned, but result in prescriptions of drugs that are not necessary and combinations that are irrational. Thus, it is not surprising that studies of prescribing in primary care show that the majority of prescriptions in our country are of drugs of ‘doubtful efficacy’.

There is a need to strengthen the mechanism for continuing professional development of practitioners to ensure that they have the necessary knowledge and skills to prescribe rationally. Perhaps the insistence that prescribers should undergo a continuing medical education (CME) course once in year on newer drug molecules introduced into market. Adverse drug reactions (ADR) reporting should be made mandatory as they are in developed countries. Pharmacovigilance should be more effective. Hospitals should constitute drugs and therapeutics review committee to rationalize prescribing.

Finally, medical colleges and postgraduate institutes must take the responsibility of training students and young doctors how to assess new drugs and drug combinations more logically. Unless we encourage our students to think rationally and independently this menace will continue to grow.

Irrational prescribing is a habit that is difficult to cure.⁶ However, prevention is possible. There is some evidence that interventions such as short problem-based training course in pharmacotherapy⁶ and rational use focused workshops⁷ can improve prescription behaviour and skills. There is an urgent need to implement training initiatives, with support from public sources to ensure that there is no conflict of interest, to improve prescription behaviour of practitioners in our country and ensure that patients receive evidence-based, cost-effective treatments for their health problems.

Prescribing is a complex task requiring: diagnostic skills, knowledge of medicines, an understanding of the principles of clinical pharmacology, communication skills and appreciation of risk and uncertainty. Rational prescribers should attempt to: 1) maximise clinical effectiveness 2) minimise harms 3) avoid wasting scarce healthcare resources 4) respect patient choice. Rational prescribing normally follows a logical sequence from diagnosis to follow-up.⁸

The accumulation of clinical trials' data on modern therapies might have been expected to provide sufficient evidence to support most clinical decisions. In fact, clinicians prescribe in varied circumstances, often in the absence of evidence, and rational prescribing decisions must be based on knowledge interpreted in the light of many other factors.

All healthcare systems have limited resources. The rapidly increasing cost of medicines forces all prescribers to consider cost-effectiveness as a factor in drug selection. Devising local formularies, following Standard Treatment

guidelines (STG) and creating National Institute for Health and Clinical Excellence can help doctors to prescribe more rationally. Perhaps the most obvious example of cost-effective prescribing is selecting a generic rather than a branded drug from the same class. It has been adequately demonstrated that implementing a program in rational use of medicines is not only possible but also implemented in many countries. It is hoped that programs in rational use of drugs would be initiated and implemented widely at different centers in our country. This would certainly make a difference.

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