The economics of prescribing

Although there is disagreement over the extent to which market forces should be allowed to shape the future of the health service, there is little doubt that health-care provision will remain subject to economic constraints. The government is challenging the medical profession to accept greater responsibility for managing resources and seeks to encourage and reward efficiency. In the past, scant attention has been paid to economic issues, particularly in the evaluation of new drug therapies; there is thus little information on which to formulate a policy for efficient prescribing.

Recent articles in the medical [1] and lay [2, 3] press have heightened awareness of the cost of certain types of drug treatment. Erythropoietin, interleukin, and growth hormone in particular are regarded as prohibitively expensive and some doctors have been unable to prescribe them. Waiting lists for routine operations have been a feature of the NHS for many years and are seen as a way of restricting access to surgical treatment, but the concept of rationing drugs is comparatively new. The 'limited list' was introduced in an attempt to avert unnecessary spending on non-essential drugs and resulted in an annual saving of £75 million, without any adverse effects on patient care [4]. However, the withdrawal of erythropoietin therapy, for example, is associated with significant physical and psychological morbidity [5], and thus potentially beneficial treatment is being withheld solely because of financial constraints. This may serve to focus attention on how to reconcile the conflict between the essential nature of certain therapies and their costs.

Cost considerations

In order to exert downward pressure on expenditure the Health Department is circulating general practitioners with data on their prescribing costs. Evidence from clinical costing experiments suggests that this is unlikely to have much effect on doctors' use of resources [6]. Better results have been achieved by allowing individuals or groups to hold their own budgets [7], and this is, of course, the principle which underlies the creation of fund-holding general practices. The government has given assurances that no individual will be denied drug treatment simply because the general practitioner has overspent his allowance, but many doctors are concerned that covert rationing might undermine their relationships with patients. Furthermore, some believe that all patients should receive the treatment they need irrespective of the cost and that decisions on therapy should not be influenced by price considerations [2].

The provision of all health services, including drugs, is ultimately limited by finite resources, and economics and medicine are therefore inextricably linked. But reliance on drug prices alone to determine our preferences will not necessarily lead to more efficient prescribing habits. Although drugs with high unit costs (the cost of a single dose) are commonly perceived to be expensive, in some circumstances their use may result in cost savings when compared with apparently cheaper alternatives. Lobo *et al* [8] compared the costs associated with two different cytotoxic regimes in achieving a complete remission from acute myeloid leukaemia. They found that idarubicin, although more expensive than the established anthracycline daunorubicin, achieved a 5% saving in overall expenditure largely through a reduction in the costs of inpatient care. A similar result was found in a comparison of carboplatin and cisplatin [9].

Assessing benefits

To concentrate exclusively on the cost of drugs is to ignore the crucial issue of the benefits that arise from treatment. The problem is that benefits seem less tangible than costs and therefore more difficult to measure and evaluate but, when viewed in isolation, they too are open to misinterpretation. Following the ISIS-2 study [10], treatment with streptokinase was accepted as an essential part of the management of acute myocardial infarction, the principal benefit being the prevention of one acute death for every 35 patients treated. ISIS-1 [11] had shown that acute treatment with atenolol also saved lives but the cost/benefit ratio (140:1) was less attractive, which may explain why the drug has been underused [12]. Thirty-five doses of streptokinase cost £2800, and 140 doses of atenolol just £140. Indeed, a more detailed economic appraisal of beta-blockers in this setting found them to be undoubtedly cost-effective [13].

Unfortunately, treatment strategies are sometimes based more on fashion than on the results of controlled clinical trials, and '. . .many doctors prefer to move on to the new and unproved, which they hope will have dramatic effects, rather than to assimilate the relatively small benefits that are available from tested treatments' [14]. There is, regrettably, much evidence that the demise of clinical freedom which Hampton was seeking has not occurred; indeed it seems to be very much alive. At a time when some patients are being denied erythropoietin, which is of proven benefit in terms of improving quality of life, others are

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receiving drugs which have little discernible effect either on their symptoms or on the underlying pathology. For example, the pharmacological treatment of intermittent claudication costs the health service over £25 million a year, but the consensus view is that these drugs are not worth using [15]. This ethically unacceptable situation clearly needs to be remedied, and perhaps more attention should be directed towards the important issue of efficiency in therapeutics.

Studying efficiency

Efficiency is concerned with both costs and benefits, and comes in two basic varieties. Technical efficiency is concerned with how to meet a given accepted objective at least cost. For example, if the goal is simply to heal duodenal ulcers, the commonly used drugs are equally effective and the cheapest is sucralfate [16]. Cimetidine is slightly more expensive but probably better tolerated, and in practical terms may be the preferred drug. However, it is rarely the case in medicine that two treatments are truly equally effective, which means that it is often difficult to perform a satisfactory cost-effectiveness analysis. Thus the issue is complicated by the fact that ulcers tend to recur, and give rise to 'expensive' complications such as bleeding and perforation. To encompass these possibilities satisfactorily it would be necessary to ascribe monetary values to all the possible outcomes of treatment, as is done in cost-benefit analysis [17]. Here the problem is one of allocative efficiency of how to maximise benefit from available resources. This is exemplified by a study from Knill-Jones [18] who examined the benefits of misoprostol in the prevention of gastric ulceration from non-steroidal anti-inflammatory analgesics, and found that in most circumstances the drug is either cost-saving or cost-neutral.

The quality of an economic appraisal depends to a large extent on the quality of the medical information on which it draws, and ideally only data from controlled clinical trials should be used. Although very few trials have incorporated an economic component, it has subsequently been possible to make a limited assessment of the likely economic consequences of different forms of treatment. Thus, from the results of the MRC trial of therapy for mild hypertension, Wilcox [19] estimated that the cost of preventing a stroke with bendrofluazide was £2100, and £33,083 with propranolol. Similarly, Tubman [20] used data from a European multicentre study of surfactant replacement therapy in the management of babies with severe respiratory distress syndrome, and found that the costs per extra survivor compared favourably with those of established forms of treatment for other, unrelated conditions. This study illustrates a particularly important principle of economic appraisal, which is that the focus should be on the marginal costs incurred or avoided and the benefits gained or lost by alterations in therapy, rather than the average gains or losses of the whole treatment programme [17]. This is because most of the practical issues in health care planning are concerned with how much to extend or contract existing services, not whether to create new ones or abolish old.

Conclusions

It is regrettable that there is such a dearth of information about the economics of drug therapy on which to base rational prescribing. But then, much of medical practice is founded on what is only believed to be effective on currently available evidence. Doctors face great pressure to give treatment irrespective of cost, even in situations in which the potential benefit is likely to be small [21]. This dilemma has for some time been a particular feature of the management of patients with cancer [22], but increasing financial constraints mean that the issue is now permeating many other branches of medicine. Although the role of economics in medicine is debated, the fact that scarce resources have alternative uses is inescapable, and doctors have an ethical responsibility always to give due consideration to both the costs and benefits of treatment [23].

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