Compliance with restrictions on the subsidized use of proton pump inhibitors in Australia

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Aims To determine among a cohort of patients newly dispensed a prescription for a proton pump inhibitor (PPI) the extent of prior use of other less expensive agents such as antacids and H₂-receptor antagonists as evidence of a 'stepped care' approach to peptic ulcer and oesophageal disease.

Methods A retrospective drug utilization study was conducted within the Pharmaceutical Benefits Scheme (PBS) claims database in Australia. A cohort of social security recipients, who received approval for PPI supply in the month of October 1996, had no prior PPI approval in the previous 18 months and went on to have the drug dispensed, was assembled. This group of 'new PPI starters' was then examined for supply of less expensive prescription medicines to treat peptic ulcer and oesophageal disease in the 12 months prior to obtaining their PPI approval.

Results In a cohort of 4554 defined new PPI users, 1205 (26.5%) showed no use of H₂-receptor antagonists, antacids, cisapride, cytoprotectants or antiregurgitants in the 12 month period prior to commencing the PPI. The major reason for use given by prescribers for PBS supply was 'severe refractory ulcerating oesophagitis'.

Conclusions Subsidized supply is currently restricted on cost-effectiveness grounds to refractory peptic ulcer disease or severe oesophageal disease. Despite this, utilization and epidemiological data suggest that there is widespread leakage of use outside these indications particularly to less severe forms of oesophageal disease. This patient tracking study has shown within the PBS database that around a quarter of the patients are treated directly with a PPI without being prescribed less expensive agents at least in the preceding 12 months.

Keywords: proton pump inhibitors, drug utilisation, prior therapy, compliance with subsidy restrictions

Introduction

In 1996 around 1.7 million prescriptions for proton pump inhibitors (PPIs) were dispensed through community pharmacies in Australia at an estimated cost of A\$163 million (\$A1.00 = £0.39 = \$US0.66 at April 1998), most of which was borne by the government.

The Pharmaceutical Benefits Scheme (PBS), which lists medicines considered appropriate for subsidy in Australia, covers the cost of such drugs with patients paying only a fixed co-payment. All residents of Australia are eligible to receive drugs listed on the PBS and prescriptions written for PBS items and its equivalent for entitled veterans, the Repatriation PBS, account for around 94% of all prescriptions dispensed through community pharmacies.

The subsidized supply of proton pump inhibitors on the PBS is currently restricted on cost effectiveness grounds to refractory peptic ulcer disease or severe oesophageal disease. Two other listings for relatively rare conditions are proven scleroderma oesophagus and Zollinger-Ellison syndrome.

We examined the question of which indications prescribers were giving for use of the drugs listed as pharmaceutical benefits and whether there was evidence in a defined group of 'new starters on PPIs' of the initial use of other less expensive agents, such as antacids and H₂ receptor antagonists for symptom control i.e. a stepped care approach to peptic ulcer and oesophageal disease.

Methods

In Australia the Drug Utilisation Sub-Committee (DUSC) of the Pharmaceutical Benefits Advisory Committee (PBAC) maintains a database which provides an estimate of the community (non-hospital) use of prescription medicines [1]. As the non-subsidized use of proton pump inhibitors is negligible (0.4% of prescriptions dispensed through community pharmacies in 1996 [2]), this study used records of prescriptions for which a subsidy had been paid by the government, through its processing body the Health Insurance Commission (HIC).

The proton pump inhibitors are listed on the PBS (as at November 1997) for use in four conditions: (1) refractory duodenal ulcer or refractory gastric ulcer, with proven

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failure to heal despite 8 weeks of continuous therapy with other 'ulcer-healing drugs'; (2) severe refractory ulcerating oesophagitis proven by endoscopy; (3) scleroderma oesophagus, proven by endoscopy and unresponsive to other measures and; (4) Zollinger-Ellison syndrome.

The PBS listings for the PPIs are subject to the highest level of restriction which requires doctors to obtain prior approval from the HIC for the authority to prescribe the drug. These authority approvals are predominantly conducted by telephone and require the doctor to provide certain patient details to an administrative officer at the HIC and to specify the PBS listed indication for which the drug is to be prescribed. The reasons for use given by prescribers in the PPI approvals for the 6 months July to December 1995 were analysed from the HIC database that separately records these authority applications.

The question of whether stepped-care was evident in the prescribing of proton pump inhibitors (PPIs) was examined by looking at the prior PBS prescription dispensing to a group of people with concession card entitlements who were defined 'new starters' on PPIs in the month of October 1996. Concession card holders are people who receive some sort of social security entitlement with the major groups being aged pensioners, veterans, unemployed people or those with low income, sole parents and disability support pensioners together with their dependants. Although a subset of the general population, they are high volume users and represent around 66% of the prescription use of PPIs in the community.

The major advantage of analysing medication profiles of concession card holders is that there is a strong link to the patient identification number, while the low patient copayment level allows the capture of all their prescription drug use (other than private prescriptions). It even includes the prescription use of some over-the-counter (OTC) antacid mixtures, which are cheaper for this group of patients when obtained on prescription. Small OTC packs of H₂-receptor antagonists have been available in Australia since 1995 however, as with the antacid mixtures, there is a strong financial incentive for holders of concession cards to obtain these medicines on prescription. For example the OTC price at March 1998 for 20 tablets of cimetidine 200 mg was \$A14.68, while on prescription the concession level copayment of \$A3.20 provides a dispensed quantity of 120 tablets.

The study cohort consisted of all concession category patients who (1) were approved for PPI supply in October 1996; (2) had no PPI approval in the previous 18 months and; (3) who went on to have the prescription dispensed. This cohort of 'new starters on PPIs' was then examined for supply of other less expensive but relevant drugs (H₂-receptor antagonists, antacids, cisapride, cytoprotectants, anti-regurgitants) to determine whether or not there was evidence of a stepped-care approach being used in the patient's management in the 12 months prior to obtaining the PPI authority.

Results

Use of proton pump inhibitors in Australia has increased rapidly from 18 500 prescriptions dispensed through com-

munity pharmacies in 1990, the first year of marketing, to 1.7 million prescriptions in 1996. Expressed in terms of the WHO drug utilization standard, the number of defined daily doses (DDDs) per 1000 population per day [3], use has increased from 0.085DDDs/1000 population/day in 1990 to 8.639 DDDs/1000 population/day in 1996 (Figure 1). The DDD value is the assumed average adult dose per day and for omeprazole, pantoprazole and lansoprazole is 20 mg, 40 mg and 30 mg respectively.

Analysis of prescriptions dispensed in the 6 months to December 1995 showed that 79.5% of prescriptions were written by general practitioners, while 46 of the 50 top prescribers were gastroenterologists. Most medicines prescribed in hospital clinics in Australia are dispensed through community rather than hospital pharmacies. The main reason for use given by prescribers in PPI authority approvals for the same period was severe refractory ulcerating oesophagitis (86%), with the next most frequent use being refractory gastric or duodenal ulcer (12%).

The study cohort consisted of 4554 'new PPI users' and of these patients 3349 had been supplied with one or more of the index (less expensive, relevant) drugs in the 12 months prior to obtaining the PPI prescription i.e. 1205 (26.5%) showed no evidence of a 'stepped-care' approach in drug therapy prior to commencing on a proton pump inhibitor.

In 3870 (85%) of the PPI authority approvals for the study group the prescriber gave severe refractory ulcerating oesophagitis as the reason for use of the drug, while 637 (14%) were for refractory duodenal or gastric ulcer.

For the patients receiving prior therapy the most common drugs or drug combinations used in the 12 months before the initial dispensing of the PPI were H₂-receptor antagonists (H₂-RAs) alone; H₂-RAs with antacid and; H₂-RAs with cisapride (Table 1).

Discussion

The use of the PPIs has been growing rapidly in Australia and the rate of rise shows no signs of slowing at this stage. Subsidized supply is currently restricted on cost effectiveness grounds to refractory peptic ulcer disease or severe oeso-

Figure 1 Proton pump inhibitor (PPI) utilisation in Australia 1990–1996. ○ omeprazole, ■ lansoprazole, ▲ pantoprazole.

Table 1 Ten most common drug/drug combinations (representing 97% of total) dispensed to the 'new PPI users' in the 12 months prior to dispensing of the PPI.

Drug or drug combination	Patients
H ₂ -receptor antagonists (H ₂ -RA)	2034
H ₂ -receptor antagonist + antacid	438
H ₂ -receptor antagonist + cisapride	321
H ₂ -receptor antagonist + cisapride + antacid	92
H ₂ -receptor antagonist + cytoprotectant antacid	86
H ₂ -receptor antagonist + anti-regurgitant	82
cisapride	78
H ₂ -receptor antagonist + cisapride + anti-regurgitant	50
H ₂ -receptor antagonist + antacid + anti-regurgitant	32
	28

phageal disease. Despite this, utilization and epidemiological data suggest there is widespread leakage of use outside these indications particularly to less severe forms of oesophageal disease. Whilst they are undoubtedly effective in less severe but still symptomatic oesophageal disease, their cost effectiveness in this setting is uncertain, and the potential utilization and cost to the Government and community is extremely high. Even with the current restrictions, the cost of the PPIs represents close to 6% of the total cost of drugs subsidized by the Australian Government.

The major reason for use given by prescribers for PBS supply was severe refractory ulcerating oesophagitis, which up until recently (February 1997) did not explicitly require endoscopic confirmation for the prescription to be dispensed as a pharmaceutical benefit.

A rough adjustment of the aggregate utilization data (in DDDs/1000/day) by the percentage use in severe refractory ulcerating oesophagitis seen in the national data (86%) would suggest that enough PPIs had been dispensed in 1996 to provide around 137 000 people with a full adult dose every day of the year.

A study conducted in Sweden among adults who presented for endoscopy in a 2 year period suggested an incidence of 120 cases per 100 000 population with 88% having single or multiple erosions and only 5.6 per 100 000 having grade 3 (presence of ulceration or stenosis) oesophagitis [4]. The latter group would probably be closest to the PBAC definition of severe refractory ulcerating oesophagitis, but even using the less restrictive estimate produces a

population eligible for treatment six times less than that estimated from the 1996 Australian usage, even assuming continuous therapy.

A stepped care approach to peptic ulcer and oesophageal disease emphasizes the initial use of other less expensive agents such as antacids and H₂-receptor antagonists, whose long term safety is also better known, for symptom control. Our ability to carry out cohort tracking studies using the PBS/RPBS data base has allowed us to show that about 25% of patients are treated directly with a PPI without being prescribed less expensive agents at least in the preceding 12 months. Whilst undoubtedly too high, this figure is much less than that (80%) found in a recent Canadian study using similar methodology although only examining use of H₂-receptor antagonists in the preceding 6 months [5].

Increasing drug costs are a concern of governments and communities worldwide. In Australia, an important factor in increasing costs is the switch to newer and more expensive drugs in important therapeutic groups. The challenge is to use educational and regulatory mechanisms to encourage use of such agents only in situations where they can be shown to be appropriate on clinical, safety and cost effectiveness grounds.

References

- 1 Edmonds DJ, Dumbrell DM, Primrose JG, McManus P, Birkett DJ, Demirian V. Development of an Australian drug utilisation database: a report from the Drug Utilization Subcommittee of the Pharmaceutical Benefits Advisory Committee. *PharmacoEconomics* 1993; **3**: 427–432.
- 2 Commonwealth Department of Health and Family Services. *Australian Statistics on Medicines 1996*. Australia Government Publishing Service. Canberra, 1998.
- 3 WHO Collaborating Centre for Drug Statistics Methodology. *Guidelines for DDD*. Nordic Council on Medicines Oslo 1991.
- 4 Loof L, Gotell P, Elfberg B. The incidence of reflux oesophagitis: a study of endoscopy reports from a defined catchment area in Sweden. *Scand J Gastroenterol* 1993; **28**: 113–118.
- 5 McBride JE, Pater JL, Dorland JL, Lam Y-M. Extent and variation of omeprazole prescribing in an elderly population of Ontario. *Ann Pharmacother* 1997; **31**: 411–416.

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