AUDIT

The real cost of aspirin

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Abstract

Aspirin is a widely used drug and perceived by most physicians to be inexpensive. High rates of concurrent gastroprotective agents are reported from a study of cardiology outpatients. Aspirin takers are more likely to also be taking a proton pump inhibitor, H₂ antagonist, or antacid than non-aspirin takers. They are more than 10 times as likely to be experiencing upper gastrointestinal symptoms. Although aspirin is inexpensive, it is emphasised that the overall cost implications for therapy can be significant and it is suggested that it may be more appropriate to consider the use of alternative antiplatelet agents in patients who tolerate aspirin poorly.

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Aspirin is a valuable drug which has been shown to significantly reduce vascular morbidity and mortality. To many physicians prescribing aspirin represents the use of a relatively harmless drug, but the adverse effects are well recognised with even a small dose leading to an excess of bleeding events.^{1,2} Recently, other antiplatelet agents have become available.³ These platelet glycoprotein inhibitors have been shown to be more efficacious than aspirin in the prevention of vascular events. They have a more favourable side effect profile⁴ but their cost is greater than that of aspirin. At present many cardiologists perceive the cost of prescribing aspirin as negligible but it is likely that the cost of its use in the wider sense is well in excess of that of the drug itself because treatment is often required for gastrointestinal side effects. This study aimed to assess the frequency of concomitant gastroprotective therapy and upper gastrointestinal adverse events with aspirin and to determine the cost implications.

Methods and results

We prospectively studied 217 patients (aged 59±12 years, 63% male) with a variety of heart diseases who attended our cardiology outpa-

tient clinic for clinical reasons. A total of 131 (60%) had coronary artery disease. Of the remaining 86 patients 25 (12%) had valvular disease, 17 (8%) an arrhythmia, 10 (5%) congenital heart disease, six (3%) hypertension, five (2%) dilated cardiomyopathy, and eight (4%) had other forms of heart disease. Fifteen patients (7%) had no evidence of heart disease and were referred because the cause of chest pain was not clear. A comprehensive drug history was taken in all study subjects. The date of institution and duration of aspirin and any gastroprotective therapy including proton pump inhibitor, H₂ receptor antagonist, or antacid was determined. Patients were asked about upper gastrointestinal symptoms, a diagnosis of a peptic ulceration, upper gastrointestinal blood loss of sufficient severity to necessitate blood transfusion and upper gastrointestinal endoscopy. Dyspepsia was defined as pain experienced in relation to food and relieved by antacids. The prevalence of gastroprotective therapy and gastrointestinal adverse affects was compared between patients taking aspirin (n=127) and non-aspirin taking controls (n=90), this being the primary outcome measure of the study. None of the study population were taking non-steroidal anti-inflammatory agents other than aspirin. The reason, where appropriate, for non-treatment with aspirin was determined. Variables were compared between the two groups using the χ^2 test. The 95% confidence intervals for the difference in proportions between the two groups were calculated.

Aspirin dose was 150±88 mg/day. The prevalence of proton pump or H₂ receptor antagonist treatment was higher in aspirin takers than controls (table 1). There was no significant difference between the two groups in the proportion of patients taking antacids. Significantly more patients on aspirin were experiencing upper gastrointestinal symptoms. There was no significant difference in the proportion of patients requiring endoscopy, diagnosed as having experienced peptic ulceration, or upper gastrointestinal bleeding. Data analysis did not demonstrate an influence of sex on whether study subjects were aspirin takers or controls. Of the 131 patients with coronary

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Table 1 Number of patients experiencing side effects of aspirin or requiring gastroprotective therapy

	PPI or H ₂ antagonists	Antacid	Dyspepsia	Endoscopy	Peptic ulcer	Gastrointestinal bleed
Aspirin (%) (n=127)	36 (28)	10 (8)	15 (12)	21 (17)	8 (6)	5 (4)
No aspirin (%) (n=90)	15 (17)	2 (2)	1 (1)	17 (19)	7 (8)	4 (4)
95% Confidence interval	0.1% to 21.9%	-0.5% to 11.5%	5.0% to 17.0%	-4.8% to 8.8%	-5.0% to 9.0%	-5.3% to 5.3%
p Value	<0.05	NS	<0.01	NS	NS	NS

PPI = proton pump inhibitor.

Table 2 Cost of one month of aspirin coadministered with gastroprotective therapy compared with platelet glycoprotein inhibitor

Regimen	Cost per month
Aspirin 150 mg/day, lansoprazole 30 mg/day	£38.09
Aspirin 150 mg/day, omeprazole 20 mg/day	£38.55
Clopidogrel 75 mg/day	£39.09

artery disease 20 (15%) were not taking aspirin but in only eight (6%) was aspirin relatively contraindicated (three patients reported hypersensitivity to aspirin, four had chronic gastrointestinal symptoms, and one had a microcytic anaemia). The remaining patients had either been started on aspirin only to have it stopped due to perceived side effects or had never received the drug.

Discussion

Our study has shown that compared with controls 11% more patients receiving aspirin are

prescribed concomitant gastroprotective agents. The costs of this therapy and the newer antiplatelet agents are not dissimilar (table 2). Furthermore, aspirin was contraindicated in 6% of patients. Patients needing concomitant gastroprotective agents and those with a contraindication to aspirin should be considered for newer antiplatelet agents.

- 1 SALT Collaboration Group. Swedish aspirin low-dose trial (SALT) of 75 mg aspirin as secondary prophylaxis after cerebrovascular ischaemic events. *Lancet* 1991;**338**:1345–9.
- 2 Dutch TIA Trial Study Group. A comparison of two doses of aspirin (30 vs 283 mg a day) in patients after a transient ischaemic attack or minor ischaemic stroke. *N Engl J Med* 1991;**325**:1261–6.
- 3 Inhibition of platelet glycoprotein IIb/IIIa with eptifibatide in patients with acute coronary syndromes. The PURSUIT Trial Investigators. Platelet glycoprotein IIb/IIIa in unstable angina: receptor suppression using integrilin therapy. *N Engl J Med* 1998;**339**:436–43.
- 4 CAPRIE steering committee. A randomised, blinded, trial of clopidogrel versus aspirin in patients at risk of ischaemic events (CAPRIE). *Lancet* 1996;**348**:1329–39.

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