Impact of aspirin on presentation and hospital outcomes in patients with acute coronary syndromes (the Global Registry of Acute Coronary Events [GRACE])

Introduction

Aspirin has been a mainstay therapy for the secondary prevention of cardiac ischemic events in patients with CAD for more than a decade. Despite the benefits associated with regular aspirin use, a substantial proportion of patients on chronic aspirin therapy still present with an ACS. This is not completely surprising when one considers the relatively weak inhibitory effect of aspirin on platelet aggregation, the multitude of mechanisms by which platelet activation occurs in vivo, and the extent of patient non-compliance with prescribed medications.[1]

The objective of this observational study is to examine patterns of use of aspirin and associated clinical characteristics and outcomes in patients enrolled in the multinational GRACE study.

Results

Data were analyzed from 11,388 ACS patients with a mean age of 64 years who were not previously treated with warfarin, clopidogrel or ticlopidine. Forty-four percent of these patients had a history of CAD, 73% of whom were on chronic aspirin therapy. This compared with a figure of 19% in patients with no history of CAD.

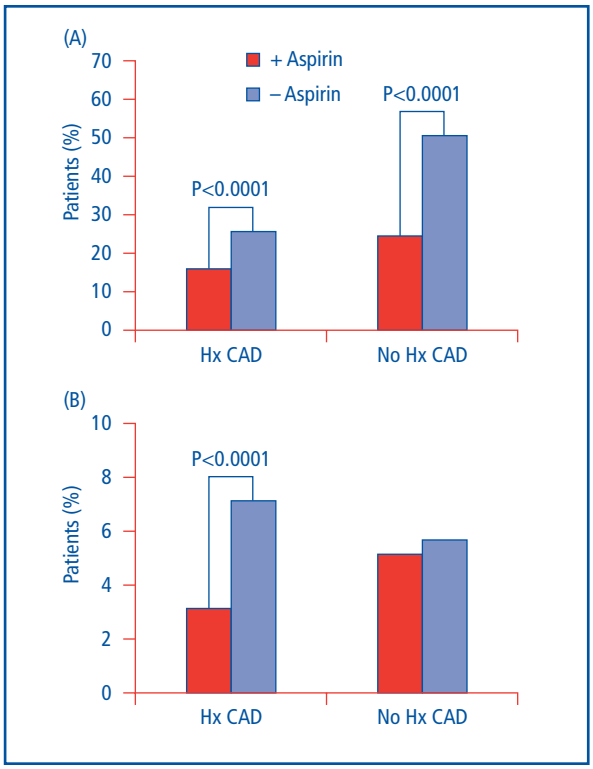

Figure 1.
(A) STEMI diagnosis (final), and (B) in-hospital death, according to prior aspirin use and history of CAD

Compared with patients not on prior aspirin therapy, those with a history of CAD who were on aspirin were younger, more likely to have a history of hyperlipidemia or to have undergone previous PCI or CAGB. These patients were also more likely to be treated with aspirin, beta-blockers, calcium-channel blockers, nitrates or statins during hospitalization and at discharge than patients who were not previously on aspirin. They were also less likely to receive other antiplatelet agents during hospitalization.

Compared with patients who were not on prior aspirin therapy, individuals with no history of CAD who were on chronic aspirin therapy were older, more likely to be female, and to have a history of diabetes, hypertension, hyperlipidemia, cerebrovascular disease, or atrial fibrillation, but were less likely to smoke. They were no more likely to receive aspirin during hospitalization than patients not on prior aspirin therapy, and were only marginally more likely to receive it at discharge; they were also less likely to receive another antiplatelet during hospitalization. Patients with no history of CAD who were previously on aspirin were significantly less likely to receive beta-blockers, UFH, GP IIb/IIIa inhibitors, and to undergo cardiac catheterization or PCI than individuals with no history of CAD who were not previously on chronic aspirin therapy.

Patients on chronic aspirin therapy were less likely to develop STEMI than patients not previously taking aspirin (Figure 1). Patients with a history of CAD and chronic aspirin use were less likely to die during hospitalization than those not previously on aspirin. No significant differences were observed in the rates of major bleeding for patients with or without CAD or in those taking or not taking prior aspirin.

Multivariate regression analyses, controlling for demographic and clinical characteristics, were carried out to evaluate the association between prior aspirin use and hospital presentation and the

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Table 1. Association between prior aspirin use, type of ACS and selected hospital events

	History of CAD; prior aspirin use OR (95% CI)	No history of CAD; prior aspirin use
Presentation with STEMI	0.52 (0.44, 0.61)	0.35 (0.30, 0.40)
In-hospital death	0.69 (0.50, 0.95)	0.69 (0.51 to 0.93)
Major bleeding	0.87 (0.59, 1.27)	1.15 (0.80 to 1.64)

occurrence of selected hospital events. Both patients with a history of CAD who were chronic aspirin users and those without a history who were chronic aspirin users were less likely to present with STEMI or to die while in hospital compared with those not taking aspirin (Table 1). However, in patients with no history of CAD, after controlling for hospital medications and cardiac procedures this reduction in risk of death became non-significant.

Discussion

Despite the established benefits of aspirin as primary prophylaxis, in this study fewer than 20% of patients with no history of CAD were on chronic aspirin therapy. This figure is disappointingly low given the advanced age of the population and the presence of comorbidities. The data show that, regardless of whether or not patients had a history of CAD, patients who were taking aspirin as a chronic therapy were less likely to present with STEMI, rule in for an MI or require revascularization while in hospital.

In both the TIMI 11B and PURSUIT subgroup analyses,[2,3] patients on chronic aspirin therapy had worse short-term outcomes compared with patients not taking aspirin. The results from these two studies conflict with the results reported here, in which patients with a history of CAD who were previously on aspirin had a significantly reduced risk of hospital complications, and this reduction in risk remained after controlling for other potential confounders. The reasons for the discrepancy between the clinical trial results and this observational registry study are unclear, but may in part be related to differences in the type of patients enrolled in such studies. For example, the patients in our study were older and had a higher prevalence of comorbidities and previous coronary interventions than patients in the TIMI 11B or PURSUIT trials.

References

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