in the heterosexual population is to be prevented intervention should focus primarily on injecting drug users and their partners who continue to engage in unprotected heterosexual intercourse.

Since this paper was prepared a number of seroconversions attributed to needle sharing have occurred in a Scottish prison. At least one of our group is involved.

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Postmarketing study of cardiovascular adverse reactions associated with sumatriptan

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Prevalence of cardiovascular
adverse reactions associated with
sumatriptan in 1727 patients

Adverse reaction	No (%) of patients
Chest pain	23 (1.3)
Palpitations	6 (0.35)
Hypertension	2 (0.12)
Syncope	2 (0.12)
Bradycardia	1 (0.06)*

*Also developed chest pain.

In May 1991 the serotonin-1 agonist sumatriptan was registered in the Netherlands for the treatment of acute attacks of migraine and cluster headache. In clinical trials sensations of pressure and tightness in the chest were experienced by 3% to 5% of patients, but no electrocardiographic evidence of cardiac ischaemia was found.¹ Since being marketed sumatriptan has been associated with pain like angina pectoris² and, when given subcutaneously, with chest pain accompanied by ST elevation in an electrocardiogram³ and with acute myocardial infarction in a previously healthy young woman.⁴ We conducted a postmarketing study of the prevalence of cardiovascular adverse reactions associated with sumatriptan in cooperation with dispensing general practitioners.

Patients, methods, and results

In July 1992 all 687 dispensing general practitioners in the Netherlands were asked to provide the date of birth and sex of every person to whom sumatriptan had been dispensed since it was marketed in May 1991. They were also asked about the route of administration and whether they had observed any adverse reactions in their patients. To avoid bias no specific adverse reactions were mentioned in the questionnaire. The non-responders received two reminders, 11 and 17 weeks after the first request. Information was entered into a database and results were analysed by using two tailed χ^2 and Student's *t* tests.

The request yielded a response rate of 86% (589 general practitioners). Of these, 474 had dispensed sumatriptan on at least one occasion to a total of 1727 patients (414 men (24%) and 1313 women (76%)). The mean age of the patients was 43.8 years (SD 11.2). Of the 1662 patients (96%) with information about the route of administration, 683 (41%) had taken sumatriptan orally, 842 (51%) subcutaneously, and 137 (8%) both orally and subcutaneously.

Of the 1727 patients, 185 (10.7% (95% confidence interval 9.3% to 12.1%)) had reported one or more adverse reactions, which resulted in a total of 247 adverse reactions. The mean age of the 1542 patients who did not report any adverse reactions was 43.8 (SD 11.2), and 1172 (76%) were women. The mean age of the 185 patients who reported adverse reactions was 43.3 (11.2), and 141 (76%) were women. The most frequently reported adverse reactions were dizziness, nausea or vomiting, drowsiness or sedation, and chest pain, which were reported in 30, 26, 25, and 23 patients respectively. Of the 183 patients who reported an adverse reaction and for whom date on administration were known, 81 (44%) had been given sumatriptan

orally, 77 (42%) subcutaneously, and 25 (14%) both orally and subcutaneously. The corresponding figures for those who did not report any adverse reaction were 602 (41%), 765 (52%), and 112 (8%) ($\chi^2 = 10.82$, *df* = 2, *p* = 0.004).

The table summarises the cardiovascular adverse reactions. Chest pain was reported by 19 (83%) women and four (17%) men, of whom eight (35%) had taken sumatriptan orally, 11 (48%) subcutaneously, and four (2%) both orally and subcutaneously. The mean age of these patients was 44.0 (6.4) years. Of the 1704 patients who did not report chest pain and for whom data on administration were known, 675 (41%) had taken sumatriptan orally, 831 (51%) subcutaneously, and 133 (8%) (χ^2 with Yates's correction = 2.6, *p* = 0.27). Their mean age (43.8 (11.3) years) and the proportion of men and women (410 (24%) and 1294 (76%) respectively) were not significantly different from the values in the group reporting chest pain. The prevalence of chest pain associated with sumatriptan was 1.3% (95% confidence interval 1.2% to 1.5%).

Comment

Reports of angina pectoris and acute myocardial infarction with sumatriptan prompted us to estimate the prevalence of chest pain with this drug under everyday conditions. Dispensing general practitioners are a good source of information on adverse reactions to newly marketed drugs because of their excellent cooperation and direct access to data on dispensed drugs and disease in individual patients.

We intend to send a questionnaire to all patients who were treated with sumatriptan to investigate whether unreported adverse reactions occurred because the prevalence of chest pain in our study was lower than that in clinical studies.¹ For an adverse reaction to be recognised, however, patients have to tell their general practitioner. If they fail to do so the prevalence of adverse reactions will be underestimated when reactions are mild.

A recent angiographic study suggested that sumatriptan causes coronary artery vasoconstriction.⁵ That chest pain was observed both in our study and in similar reports² highlights the need for an extensive study, especially given the reported electrocardiographic abnormalities³ and myocardial infarction⁴ with sumatriptan. We therefore intend to set up a case-control study of patients with self reported chest pain to assess determinants of this adverse reaction.

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