

- 3 Frick OL, German DF, Mills J. Development of allergy in children. Association with virus infections. *J Allergy Clin Immunol* 1979;63:228-41.
- 4 Lessof MH, Buisseret PD. Gastrointestinal reactions. In: Lessof MH, ed. *Immunological and clinical aspects of allergy*. Lancaster: MTP Press, 1981:150.
- 5 Katz DH. The allergic phenotype. Manifestation of "allergic breakthrough" and imbalance in normal "damping" of IgE antibody production. *Immunol Rev* 1978;41:77-108.

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Peptic ulcers induced by piroxicam

Piroxicam is a commonly used non-steroidal anti-inflammatory drug. Its advantages include its high efficacy, its long plasma half life (mean of 38 hours), which enables it to be taken as a single daily dose, and its supposedly low incidence of gastrointestinal side effects. We report, however, on four patients with peptic ulcers induced by piroxicam seen over four months. None had had dyspeptic symptoms previously, and none was taking other ulcerogenic drugs.

Case reports

Case 1—A 79 year old housewife with a 40 year history of arthritis received phenylbutazone for five years before her treatment was changed to piroxicam 20 mg daily in September 1983. In November she developed anaemia and epigastric discomfort that responded to antacids. Investigations showed iron deficiency anaemia with a haemoglobin concentration of 5.9 g/dl (mean cell volume 63.0 fl, mean cell haemoglobin 30.6 pg). She was not taking any drugs other than piroxicam. Endoscopy showed a prepyloric ulcer. Piroxicam was stopped, and she was given a six week course of cimetidine. Repeat endoscopy showed that the ulcer had healed.

Case 2—A 50 year old woman had had symptomatic multiple joint pain for three years. She developed typical ulcer pain soon after taking piroxicam and was prescribed antacids. She was not taking any other drugs. Endoscopy showed three benign gastric ulcers. Piroxicam was stopped, and after a course of ranitidine repeat endoscopy showed complete healing of the ulcers.

Case 3—An 87 year old woman taking piroxicam for arthritis was admitted with a five day history of melaena and massive haematemesis. She was shocked with a blood pressure of 90/70 mm Hg. Haemoglobin concentration was 6 g/dl. Four units of blood were transfused. Endoscopy showed a duodenal ulcer. She recovered with conservative treatment, and repeat endoscopy was not performed.

Case 4—An 81 year old man was admitted with massive haematemesis and melaena. He was receiving piroxicam 10 mg twice daily for arthritis. He was shocked with a blood pressure of 60/0 mm Hg and a pulse rate of 110/min. Haemoglobin concentration was 8.2 g/dl. Five units of blood were given in the first 24 hours. Thirty six hours after admission he started to rebleed with massive melaena and collapsed, his blood pressure dropping from 140/80 to 90/60 mm Hg. Three more units of blood were given, and emergency endoscopy showed a deep, actively oozing posterior duodenal ulcer. Polya gastrectomy was performed, and he made a good recovery.

Comment

We are concerned by this high incidence of ulceration induced by piroxicam over such a short period. Clinical trials of piroxicam have shown a low incidence of serious gastrointestinal side effects. Ando and Lombardino did not find a single case of ulcer or gastrointestinal bleeding in 537 patients.¹ Several large scale multicentre surveillance studies of over 73 000 patients reported an incidence of ulcers of 0.1-0.7%.^{2,3} Pitts showed that the prevalence of ulcer with piroxicam 20 mg daily was 0.9% (N E Pitts, findings presented at the ninth European congress of rheumatology, 1980). Criticisms that these studies underestimated the incidence of ulceration were confirmed by recent gastroscopic studies in arthritic patients with ulcers, which showed that many had no overt symptoms.⁴

From 1970 to February 1984, 38 cases of duodenal ulcer and 45 of gastric ulcer due to piroxicam were reported to the Committee on

the Safety of Medicines. One hundred cases of upper gastrointestinal haemorrhage occurred, with 12 deaths. These figures are probably a considerable underestimate of the true incidence of side effects. A review of all the endoscopies performed in our department in the first five months of 1984 showed 78 cases of duodenal ulcer (23 bleeding) and 48 cases of gastric ulcer (20 bleeding). The four cases of ulcer due to piroxicam reported here thus represent 3% of ulcers seen in our hospital.

In conclusion, we suspect that piroxicam may cause considerable peptic ulceration. The only way to test this hypothesis would be for patients to undergo endoscopy before and some weeks after a course of this drug.

Since this paper was accepted we have admitted a fifth patient with ulcers induced by piroxicam.

- 1 Ando GA, Lombardino JG. Piroxicam, a literature review of new results from laboratory and clinical studies. *Eur J Rheumatol Inflamm* 1983;6:3-23.
- 2 Langloh N. Experience with Feldene in general practice. *Therapiewoche* 1981;31:5501-4.
- 3 Huskisson EC, Boardman PJ, Burke MJ, et al. UK hospital and general practitioner group—treatment of osteoarthritis with piroxicam. *Eur J Rheumatol Inflamm* 1983;6:73-83.
- 4 Caruso I, Porro GB. Gastroscopic evaluation of anti-inflammatory agents. *Br Med J* 1980;280:75-8.

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Long term suppression of prolactin concentrations after bromocriptine induced regression of pituitary prolactinomas

Elsewhere we reported our experience of bromocriptine treatment for hyperprolactinaemia in a series of 36 women, 29 of whom showed radiological abnormalities of the pituitary fossa.¹ Twenty of the original patients, who had abnormal fossas on initial assessment, remained under follow up surveillance for a further four years. Of these, three were unable to tolerate bromocriptine and received no definitive treatment, five are still receiving bromocriptine, and one discontinued treatment after two successful pregnancies. The remaining 11 patients treated with bromocriptine showed evidence of tumour regression on serial radiological investigation and treatment was stopped. We describe the subsequent progress of these 11 patients.

Present series

Radiological assessment of pituitary fossa—Initial assessment was by thin section pituitary tomography supplemented where indicated by computed tomography (CT). When necessary metrizamide cisternography was performed. Subsequent radiological assessment was carried out at intervals of 12-18 months using a combination of thin section tomography and CT.

Treatment regimen—The dose of bromocriptine was titrated against plasma prolactin concentrations until the value had fallen into the normal range (<500 mU/l). Prolactin assays were performed every three to six months once the appropriate daily dose of bromocriptine had been determined. In general bromocriptine was discontinued when pregnancy had been confirmed—that is, three weeks after ovulation—and resumed after delivery. In two patients who showed evidence of suprasellar extension bromocriptine was continued throughout pregnancy in one instance and from 32 weeks of gestation to delivery in another. Visual field assessment was carried out at three to six month intervals. Once radiological evidence of regression of the prolactinoma had been obtained bromocriptine was stopped. Prolactin concentrations were monitored initially at monthly intervals and subsequently every three to six months. Radiological reassessment was undertaken at intervals of one year.

Patients and outcome—The 11 patients were aged 19-33 years. Pretreatment prolactin concentrations ranged between 2000 and 6400 mU/l. The daily dose of bromocriptine required to secure normoprolactinaemia lay between 2.5 and 10.0 mg. Seven women achieved at least one viable pregnancy during treatment. The duration of treatment required to secure regression in patients who achieved pregnancy (mean 28.7 months; range 19-40 months) was