

disappeared, amylose activity fell to normal. 48 h later, in the patient's consent, the drug was reintroduced, and within 12 h the pain recurred and amylase activity rose. The drug was stopped and after a few days of parenteral nutrition the patient was discharged free of symptoms.

The positive rechallenge confirms our suspicion of 5-ASA pancreatic toxicity. The mechanism is unknown. Pancreatitis should be suspected if a patient with Crohn's disease presents with new abdominal complaints while on treatment not only with azathioprine, corticosteroids, or sulphasalazine but also with 5-ASA.

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1. Altman HS, Phillips G, Bank S, Klotz H. Pancreatitis associated with duodenal Crohn's disease. *Am J Gastroenterol* 1983; 78: 174-77.
2. Mallory A, Kern F. Drug-induced pancreatitis: a critical review. *Gastroenterology* 1980; 78: 813-20.
3. Block MB, Genant HK, Kirsner JB. Pancreatitis as an adverse reaction to salicylazosulfapyridine. *N Engl J Med* 1970; 282: 380-82.
4. Faintuch J, Mott CB, Machado MC. Pancreatitis and pancreatic necrosis during sulfasalazine therapy. *Int Surg* 1988; 70: 271-72.
5. Suryapranata H, De Vries H. Pancreatitis associated with sulphasalazine. *Br Med J* 1986; 292: 732.
6. Poldermans D, van Blankenstein M. Pancreatitis induced by disodium azodisalicylate. *Am J Gastroenterol* 1988; 83: 578-80.
7. Grimaud JC, Maillot A, Bremond A, Thervet L, Salducci J. Faut-il toujours accuser la sulfapyridine? A propos d'un cas de pancréatite aiguë induite par la mésalazine. *Gastroenterol Clin Biol* 1989; 13: 432.
8. Sachedina B, Saibil F, Cohen LB, Whitley J. Acute pancreatitis due to 5-aminosalicylate. *Ann Intern Med* 1989; 110: 490-92.

NALOXONE HAZARD IN DRUG ABUSER

SIR,—Naloxone is widely believed to be innocuous.¹ We disagree with this view and share Dr Gibbs and colleagues' (July 15, p 159) opinion, that "naloxone should be used cautiously in opioid-dependent patients". We report a case of extreme agitation following the administration of naloxone to an adult opiate abuser who was a victim of a motor vehicle accident.

A 35-year-old woman was the belted driver in a head-on collision (35-40 mph). She was immobilised on a back-board in the ambulance and was in a somewhat confused lethargic state on arrival at hospital. She had a forehead laceration, but it was unclear whether she had transiently lost consciousness. Blood pressure was 150/80 mm Hg, pulse 110/min, and respiratory rate 12/min. She was uncooperative. Needle track marks were noted in both antecubital fossae, and 2 mg naloxone was given intravenously. Within 3 min the patient became very agitated and combative, requiring physical restraint. It was difficult to maintain venous access and radiography was impossible. A total of 4 mg morphine sulphate and 2.5 mg droperidol was given intravenously without subsequent change in her agitation. A further 5 mg of droperidol also failed to have an effect. After 47 min the patient's state continued to hinder diagnostic evaluation and it was felt that her agitation could aggravate injuries she may have sustained. She was therefore intubated and ventilated following the administration of pancuronium (20 mg). We could then examine the head, cervical spine, and abdomen by computed tomography (CT). CT scans, radiographs, arterial blood gases, haematocrit, serum electrolytes, and urinalysis were normal. Toxicological analysis revealed the presence of large quantities of opiates and cocaine. Her family later confirmed that she had used large amounts of heroin shortly before the accident. It is likely that the administration of naloxone either precipitated acute opiate withdrawal or allowed the effects of another drug to predominate.

This case illustrates the management dilemma and the possible iatrogenic complications that can arise following the routine administration of opiate antagonists in this setting. If a "diagnostic

or naloxone to reverse the effects," and in these cases it can be given in incremental amounts. In cases where the confirmation of narcotic use is not urgent—ie, the patient is haemodynamically stable without respiratory depression—we suggest that the use of naloxone be deferred until more important diagnostic procedures have been done.

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1. Goldfrank LR, ed. Toxicologic emergencies: a comprehensive handbook in problem solving. New York: Appleton-Century-Crofts, 1982: 3-18: 126-27.
2. Rumack BH, ed. The treatment of poisoning: a systemic approach. Denver: Rocky Mountain Poison Center, 1978: 326-58.

SEX RATIO OF INFANTS FOLLOWING ASSISTED REPRODUCTION

SIR,—Dr Thatcher and colleagues (May 6, p 1025) reported a significantly high sex ratio in favour of male infants following in-vitro fertilisation, and Mr Al-Shawaf and Professor Craft (July 1, p 53) reported that 13 babies born after gamete intrafallopian transfer (GIFT) were boys.

I have found much evidence that the sex of human zygotes is affected by parental hormones—high levels of oestrogen favouring male infants.^{1,2} Thatcher et al say their regimen may result in high oestradiol levels. To control ovarian stimulation, Al-Shawaf and Craft used goserelin acetate, a gonadotropin releasing hormone (GnRH) analogue; and 209 women treated with another GnRH analogue, leuprolide acetate (also for the control of ovarian stimulation) were reported to have higher peripheral serum oestradiol levels than did 202 controls.³ Many data from other IVF centres suggest that in general IVF births show no disturbance of the sex ratio. I suggest that the high male sex ratios in the two examples cited above result from the high maternal oestrogen levels induced in these fertility centres rather than from the use of either technique.

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1. James WH. The human sex ratio, part 1: a review of the literature. *Hum Biol* 1987; 59: 721-52.
2. James WH. The human sex ratio, part 2: a hypothesis and a program of research. *Hum Biol* 1987; 59: 873-900.
3. Stone BA, Serafini PC, Quinn K, Quinn P, Kerin JF, Marrs RP. Gonadotropin and estradiol levels during ovarian stimulation in women treated with leuprolide acetate. *Obstet Gynecol* 1989; 73: 990.

BRAIN DAMAGE BY NEONATAL HYPOGLYCAEMIA

SIR,—Your April 22 editorial draws attention to two 1988 papers^{1,2} and suggests that plasma glucose levels below 2.6 mmol/l in the neonatal period may be dangerous, even in symptom-free babies. If this is so there are important implications for clinical practice.

Koh et al¹ examined evoked potentials in 17 children and recorded changes at different levels of blood glucose. Only 5 patients were newborn. Weights and gestations are not given. All had brainstem auditory responses (ABR) measured. Normal patterns were seen at blood glucose levels between 1.9 and 4.2 mmol/l. Blood glucose values before the first abnormal finding were 0.7, 1.4, 1.4, 1.9, and 2.5 mmol/l—ie, below 2 mmol/l in four babies. The baby with an abnormal ABR at 2.5 mmol/l was being fasted and was described as drowsy. This baby was 1 of 2 in whom the ABR remained abnormal despite raising the blood glucose: the