function during prolonged treatment with captopril suggests that some of the renal impairment observed before treatment might be due to a functional disorder.

We recommend close monitoring of renal function at the start of treatment with captopril in patients with chronic renal failure and severe arterial hypertension.


(Accepted 24 April 1984)

Department of Medicine, Academisch Ziekenhuis-VUB, Laarbeeklaan 101, B-1080 Brussels, Belgium
DIERIK L VERBEELN, MD, physician
STEFAN DE BOEL, MD, assistant physician

Correspondence to: Dr D L Verbeelen.

Potassium supplements during treatment of glaucoma with acetazolamide

Drugs that inhibit carbonic anhydrase, such as acetazolamide, lower the pressure in most glaucomatous eyes. The ocular hypotensive effects of the drugs appear to be independent of their diuretic action. A common side effect of treatment with acetazolamide is paraesthesia in the legs and arms. This is a symptom of hypokalaemia, so patients suffering from this side effect are often given potassium supplements. This study aimed at determining the necessity for potassium supplements.

Patients, methods, and results

Of a random sample of 150 patients attending hospital ophthalmic clinics and receiving acetazolamide to treat glaucoma, 145 (96.9%) also received potassium supplements. In almost all cases the supplement was one potassium chloride slow release tablet (slow K; 600 mg (8 mmol) daily). We randomly selected 16 patients with glaucoma who had been treated with acetazolamide and potassium supplements for more than three months. They were questioned about their dietary habits, drug compliance, drug history, and unwanted side effects. Any factor in their medical history that might influence their serum potassium concentrations was taken into consideration. Serum potassium and bicarbonate concentrations were measured, and potassium supplements were then withdrawn from all patients. Serum potassium concentrations were measured monthly, and the patients were asked about relevant changes in dietary habits and side effects.

Fifteen patients were taking 8 mmol (600 mg) and one 16 mmol (1200 mg) potassium daily. None had a medical history that might affect their serum potassium concentration. The daily dose of acetazolamide ranged from 500 mg to 1000 mg. Of the patients studied, 15 were white and one Asian; their mean (SD) age was 64.3 (12.1) years. The serum bicarbonate concentration was used as an estimate of compliance, as acetazolamide is a carbonic anhydrase inhibitor, and all patients had serum concentrations below the normal limit of 24 mmol/mEq/l. They were all also assessed after interview as being good compliers.

The diet of 15 of the 16 patients did not change; the remaining patient received a poor diet throughout the study. The incidence of paraesthesia did not alter after potassium was stopped, but nausea stopped in two patients who had previously suffered from it. The results are summarised in the figure.

Analysis of variance showed that serum potassium concentrations in patients who had stopped taking potassium supplements were not significantly different from those in patients taking potassium or from concentrations in a standard population of a similar age. Two patients who had never taken potassium supplements and had been taking acetazolamide for more than five years were found to have normal potassium concentrations.

Comment

The diuretic effect of acetazolamide is due to inhibition of carbonic anhydrase in the kidney tubules, which reduces the formation of hydrogen and bicarbonate ions. This increases the volume of urine, and metabolic acidosis follows. Further acidosis does not occur with continued acetazolamide treatment as there is a compensatory increase in reabsorption of bicarbonate in the proximal tubule. An initial loss of potassium occurs, but this is self limiting, as is the diuresis. Thus hypokalaemia may occur during the first two weeks of treatment with acetazolamide, and during this period potassium supplements may be required. Further work is needed to determine their necessity.

From the results obtained and the recent reports of the side effects of potassium it seems logical to recommend potassium supplementation only in patients with proved hypokalaemia. If a supplement is required this should be given in a dose that is sufficient to have a therapeutic effect.


(Accepted 27 April 1984)

Department of Pharmacy, Bolton General Hospital, Bolton BL4 0JR
A S CRITCHLOW, BSc, MPh, pharmacist
S F FREEBORN, MSc, MPh, principal pharmacist

Department of Ophthalmology, Bolton Royal Infirmary, Bolton BL1 4QS
R A RODDIE, MB, FRCS, consultant

Correspondence to: Mr A S Critchlow.

Major ocular trauma: a disturbing trend in field hockey injuries

Injuries due to blows from sticks in hockey have not been reported as contributing greatly to ocular sports injuries. We describe three perforating eye injuries seen in the first half of one season.

Case reports

Case 1—A 13 year old girl was hit in the left eye by the stick of an opponent who prematurely played the ball as she ran past. She suffered immediate loss of vision and was admitted to hospital. Examination under general anaesthesia showed a large horizontal laceration of the cornea and ciliary body. The lens could not be identified. A primary repair was made, but six weeks later total hyphaema was still present and an ultrasound scan showed retinal detachment. Vitrectomy was carried out, but a fibrotic retina disinserted through 270° proved impossible to replace. At follow up the eye had no perception of light and was becoming phthisical. Unaided distance acuity in the right eye remained normal (6/5).

Case 2—A 14 year old girl sustained a blow to her left eye when she ran into a high follow through stroke of a stick during a tackle. On admission a perforating injury was obvious and she had no perception of light in this eye. At operation a long laceration extended vertically from the cornea well...