B. catarrhalis was isolated from transtracheal aspirates in 10 out of 11 patients in whom *B. catarrhalis* was identified in sputum before transtracheal puncture. We conclude that the method of sputum examination which we describe is reliable in detecting lower respiratory tract infections with *B. catarrhalis* in clinical practice without the need for transtracheal puncture.

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Repeated renal failure with use of captopril in a cystinotic renal allograft recipient

The orally active converting-enzyme inhibitor captopril is extremely valuable for severe hypertension. Side effects are, however, common. Acute renal failure has been reported both with¹ and without² preceding hypotension. We describe a patient in whom captopril was associated on three separate occasions with deterioration in renal function and in whom biopsy showed acute interstitial nephritis.

Case report

A 7-year-old girl weighing 20 kg had end-stage renal failure secondary to cystinosis. Peritoneal dialysis was started in March 1980. She required antihypertensive treatment.

A cadaveric renal graft from a 48-year-old donor was transplanted in February 1981. Initial oliguria persisted for 22 days and an episode of rejection was diagnosed by needle biopsy one month after operation. After standard treatment with intravenous methylprednisolone she was discharged home. Serum creatinine concentration was 60 $\mu\text{mol/l}$ (0.7 mg/100 ml) and blood pressure 120/70 mmHg. Prednisolone 20 mg daily and azathioprine 25 mg daily were started.

Two weeks later she was readmitted with hypertensive encephalopathy and blood pressure 190/130 mm Hg. She was treated with intravenous diazoxide, chlorothiazide 500 mg in the morning, propranolol 120 mg daily, and prazosin 4 mg daily. Four days later serum creatinine concentration rose to 90 $\mu\text{mol/l}$ (1.0 mg/100 ml) and renal biopsy showed mild interstitial rejection not requiring treatment. Hypertension remained difficult to control despite increasing propranolol to 240 mg daily and prazosin to 6 mg daily. We therefore decided to withdraw these drugs and begin treatment with captopril 6.25 mg, increasing to 25 mg eight-hourly (fig). Though blood pressure did not fall further, after six days serum creatinine concentration rose suddenly to 220 $\mu\text{mol/l}$ (2.5 mg/100 ml). Renal transplant biopsy showed interstitial cellular infiltration in which eosinophils were prominent. These findings were thought to represent interstitial nephritis.

Captopril was discontinued and conventional antihypertensive agents reinstituted with the addition of minoxidil. Blood pressure remained difficult to control. Three weeks later captopril was reintroduced but renal function deteriorated and the drug was stopped. Serum creatinine concentration had risen slightly when captopril was started but we were not certain that deterioration in renal function was attributable to the drug.

Diazoxide 600 mg daily was subsequently used in addition to metoprolol 200 mg daily, frusemide 500 mg daily, and chlorothiazide 1 g daily. On this regimen brittle diabetes developed, with frequent hospital admissions for both hypoglycaemia and hyperglycaemia. In view of the severe intractable hypertension and complications of treatment captopril was again introduced. After two days acute oliguric renal failure developed, necessitating temporary peritoneal dialysis (see fig). Creatinine concentration returned to the baseline value of 340 $\mu\text{mol/l}$ (3.8 mg/100 ml) and diazoxide was reintroduced.

Comment

In our patient captopril was associated with deterioration in renal function on three occasions in the absence of hypotension. The third episode was severe and necessitated dialysis, though function subsequently returned to pretreatment values. Acute allergic interstitial nephritis was diagnosed after biopsy.

The nature of the biochemical abnormality in cystinosis is unknown. Thiol compounds such as cysteamine, when added to the culture of cystinotic fibroblasts, induce elimination of the cystine and have been shown clinically to lower the leucocyte content to the heterozygote range.³ Captopril is a mercapto compound and the possibility therefore arises that it may interact in a similar way, perhaps producing a toxic metabolite.

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Changes in plasma creatinine concentration and mean arterial pressure during treatment.

Conversion: SI to traditional units—
Plasma creatinine concentration: 1 mmol/l
≈ 0.01 mg/100 ml.