Acute renal failure after ecstasy

Drs IBRAHIM H FAHAL, D F SALLOMI, M YAQOOB, G M BELL (Royal Liverpool University Hospital, Liverpool L7 8XP) write: We report a case of acute renal failure secondary to ingestion of ecstasy (methylenedioxymethamphetamine, MDMA).

On the night before admission a 23 year old man had attended an "all night rave" and taken three tablets of ecstasy. Six hours later he was admitted unconscious after a convulsion. On examination he was semiconscious with a temperature of 40°C. He had a blood pressure of 120/60 mm Hg and a sinus tachycardia of 120 beats/min. Pupils were dilated and reacted sluggishly to light.

Preliminary investigations revealed a haemoglobin concentration of 128 g/l, white cell count $8{\cdot}8\times10^9$/l, platelet count 19×10^9/l, blood urea 9·1 mmol/l. Clotting screen showed: international normalised ratio (INR) 1·9, fibrinogen 1·8 g/l (normal 2·0-4·5), and activated partial thromboplastin time (APTT) 46 (25-33) s. Toxicology screen showed serum concentrations of MDMA (ecstasy) of 0·2 mg/l and of amphetamine of 0·1 mg/l (values of ≥0·2 mg/l are associated with serious toxicity). MDMA was detected in the urine.

His overall condition continued to deteriorate and 24 hours after admission investigations showed: haemoglobin 75 g/l, white cell count $7{\cdot}7\times10^9$/l, platelet count 9×10^9/l, INR 3·6, fibrinogen 1·8 g/l, and APTT >115 s; peripheral blood picture showed fragmented red cells compatible with disseminated intravascular coagulation. Plasma urea concentration was 12·2 mmol/l, serum creatinine 225 μmol/l, serum albumin 49 g/l, serum calcium 1·95 mmol/l, serum unconjugated bilirubin 77 μmol/l, alanine aminotransferase 289 U/l, aspartate aminotransferase 2659 U/l, lactate dehydrogenase 3510 U/l, and creatine kinase 5849 U/l (35-220). Infection screens and immunological tests showed no abnormality. Urine examination showed a pH of 9, red cells 50×10^6/l, white cells 10×10^6/l, haemoglobin +++, protein++, and no myoglobin. Renal ultrasound showed normal sized kidneys with no obstruction. The persistence of the coagulopathy prevented renal biopsy.

He received blood, platelets, and fresh frozen plasma, but 36 hours after admission he developed oliguric renal failure. Serum creatinine rose to 727 μmol/l with a blood urea of 27·7 mmol/l. After daily haemofiltration for 20 days he was managed conservatively with gradual resolution of his coagulopathy. During this period he underwent a polyuric phase and his renal failure resolved.

There are three possible mechanisms of acute renal failure in this patient: a direct toxic effect of ecstasy, disseminated intravascular coagulation, and myoglobinuria. Amphetamine induced interstitial nephritis has been described.[1] A direct nephrotoxic effect of ecstasy may well have contributed to this patient's renal failure, but we could not perform renal biopsy. Disseminated intravascular coagulation results in varying degrees of microvascular obstruction due to fibrin-platelet desposition. This process may affect the kidney, resulting in sudden ischaemia and acute tubular necrosis, or it may cause a lesion resembling thrombotic thrombocytopenic purpura.[2] Disseminated intravascular coagulation is well recognised in amphetamine related toxicity.[3] Non-traumatic rhabdomyolysis, myoglobinuria, and renal failure are a recognised clinical entity[4]; rhabdomyolysis with or without convulsions is also a recognised effect of amphetamine toxicity,[5,6] and may well have occurred in this patient, as suggested by the raised creatine kinase concentration. Myoglobinuria was absent but may only be transient.

We believe that the cause of this patient's renal failure was multifactorial; ecstasy induced severe disseminated intravascular coagulation, rhabdomyolysis, and possibly a direct effect of ecstasy itself.

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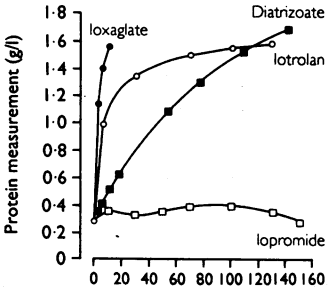
5 Scandling J, Spital A. Amphetamine-associated myoglobinuric renal failure. *South Med J* 1982;75:237-40.
6 Kendrick WC, Hull AR, Knochel JP. Rhabdomyolysis and shock after intravenous amphetamine administration. *Ann Intern Med* 1977;86:381-7.

Effect of iodinated water soluble contrast media on urinary protein assays

Drs S K MORCOS, A M EL-NAHAS, P BROWN, and J HAYLOR (Northern General Hospital, Sheffield) write: Increased urinary protein excretion is often considered a sign of underlying renal disease. However, contrast media may interfere with assays of urinary protein,[1] giving false positive results. An effect on pH is thought to be responsible for this phenomenon.[2]

We used a standard solution containing 0·25 g/l of bovine serum albumin to assess the effect of four different contrast media (ioxaglate, diatrizoate, iopromide, and iotrolan). The protein content of the solution was tested by Lowry's method[3] before and after the addition of each of the contrast media at concentrations of iodine varying from 2 g/l to 160 g/l. These iodine levels are similar to those that occur in the urine of humans after the intravascular administration of contrast media.[4] Exaggerated values of protein measurements were recorded even at low doses except with iopromide, which had little effect (figure).



Protein concentrations at varying concentrations of four contrast media

The danger of false positive results applies when protein is measured not only using Lowry's method but also when using the sulphosalicyclic method or using Albustix or other protein reagent strips. Protein concentrations so measured should not be relied on for measuring proteinuria within 24 hours of a contrast injection.

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Cutaneous vasculitis due to ciprofloxacin

Drs JULIA STUBBINGS, ROBERT SHEEHAN-DARE, and SHERNAZ WALTON (General Infirmary, Leeds LS1 3EX) write: We describe two patients in whom cutaneous vasculitis followed ciprofloxacin administration.

Case 1—A 71 year old woman presented with a history of dysuria, haematuria, and incontinence. Urine examination showed infection with *Pseudomonas aeruginosa*. She was treated with ciprofloxacin 500 mg/day for seven days and her symptoms improved. Six weeks later they recurred and she was admitted for intravenous urography and cystoscopy, both of which showed normal findings. Cephradine was given intravenously during the cystoscopy and continued orally in a dose of 500 mg/day for seven days. A post treatment urinary specimen showed infection with enterococci. Five days after discontinuing cephradine ciprofloxacin was started in a dose of 500 mg/day. Four days later the patient developed a widespread erythematous papular eruption most pronounced on the limbs. The lesions were purpuric in some areas and pustular in others and clinically looked like cutaneous vasculitis. A skin biopsy showed appearances of a leucocytoclastic vasculitis. The ciprofloxacin was withdrawn and the eruption settled gradually over seven days. A reaction to cephradine cannot be excluded, but the time course implicates ciprofloxacin.

Case 2—At the end of a 10 day course of ciprofloxacin for a chest infection a 79 year old woman developed a haemorrhagic vasculitic rash on her thighs and lower legs. She suffered from rheumatic mitral and aortic disease and had been taking atenolol, nitrazepam, digoxin, and frusemide-amiloride for the previous five months. The diuretic was stopped as soon as the rash appeared and restarted a week later as the rash settled, with no further problems. The vasculitis completely resolved within four weeks.

About 1% of patients receiving ciprofloxacin suffer adverse cutaneous reactions, most being urticarial reactions.[1] More severe reactions are rarer. The manufacturers have received one report in the United Kingdom of a 74 year old man who developed reversible Henoch-Schönlein purpura. They know of three international reports: a 74 year old man who developed vasculitis in his legs after ciprofloxacin; a 65 year old man who developed Henoch-Schönlein purpura; and a 74 year old man who developed vasculitis of the lungs two weeks after starting ciprofloxacin. The condition resolved in all three when ciprofloxacin was stopped (personal communication). Two cases of cutaneous vasculitis with systemic disease have been reported,[2,3] and a fatal case of widespread vasculitis with cutaneous disease has been reported with a related quinolone antibiotic, ofloxacin.[4]

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