CASE REPORT

Acute renal failure after amphetamine presenting with loin pain

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Case report

A 25-year-old man was admitted with acute bilateral constant flank pain with no radiation; he had no other symptoms. The pain began 9 h after taking 0.25 g of amphetamine and running 1.5 miles. He was apyrexial with a pulse rate of 80 b.p.m. and a blood pressure of 124/64 mmHg. The only abnormality on examination was bilateral renal angle tenderness. Urine analysis of his very dark urine was positive for blood and protein, and microscopy revealed hyaline casts. The serum levels of electrolytes and the clotting screen were normal (Table 1). Acute IVP showed no excretion bilaterally by 3.5 h but subsequent films revealed a delayed nephrogram at 18 h (Fig. 1a). He was managed conservatively with analgesia, intravenous fluid replacement and close observation. He continued to pass urine but 24 h later his renal function deteriorated; at 48 h it had improved and the pain settled (Table 1). He was discharged home and IVP performed 6 weeks later showed normal excretion (Fig. 1b) but the patient failed to attend four further appointments to assess his renal function.

Comment

Nephrotoxicity secondary to the use of amphetamine, and more recently 'Ecstasy', has been described, often in association with fibrinolysis (disseminated intravascular coagulation, DIC) and hyperpyrexia [1,2]. Acute renal failure may be caused directly by the drug, by microvascular obstruction secondary to DIC, myoglobinuria, systemic hypotension or hyperpyrexia [3]. This man's acute renal failure was probably caused by a combination of renal vasoconstriction, from the amphetamine, and myoglobinurea secondary to exercise. Although his symptoms resolved on conservative management.

Table 1 Serum values on admission and after 24 and 48 h

<table>
<thead>
<tr>
<th>Serum (mmol/L)</th>
<th>Admission</th>
<th>24 h</th>
<th>48 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na</td>
<td>137</td>
<td>135</td>
<td>137</td>
</tr>
<tr>
<td>K</td>
<td>3.4</td>
<td>4.8</td>
<td>4.0</td>
</tr>
<tr>
<td>HCO₃⁻</td>
<td>28</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Urea</td>
<td>5.2</td>
<td>11.3</td>
<td>7.4</td>
</tr>
<tr>
<td>Creatinine</td>
<td>302</td>
<td>158</td>
<td></td>
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</tbody>
</table>

Fig. 1. Abdominal radiographs, a, on the day of admission, 18 h after injection with intravenous contrast medium and, b, 6 weeks from admission, 5 min after injection with intravenous contrast medium.
because of the potentially serious and often idiosyncratic reactions to amphetamine, and ecstasy, any patient presenting with flank pain and a history of substance abuse should be admitted for observation.

References

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