The acute flank pain syndrome: a common presentation of acute renal failure in young males in Iceland

Sir,

In 1987, the non-steroidal anti-inflammatory drug (NSAID) suprofen was withdrawn from the market due to ~400 cases of the so-called ‘acute flank pain syndrome’ (AFPS) which was ascribed to the drug [1]. AFPS, characterized by severe flank pain, acute renal failure and recovery within 1 or 2 weeks, was most common in young males [2]. After withdrawal of suprofen, only a few reports have been published, associating AFPS with ingestion of other types of NSAIDs, binge drinking or both [3–5]. In Iceland, the nephrologists have been aware of AFPS since the mid-1990s. By now, typical patients are managed with analgesics and by observation after minimal investigation.

We screened the records of patients aged 18–41 years who received the diagnosis acute renal failure at Landspitali University Hospital during the period 1998–2007, and patients with AFPS were identified. AFPS was defined as severe flank or abdominal pain upon admission in combination with acute renal failure (serum creatinine concentration >50% increase of baseline or upper reference range), both features unexplained except for the possible intake of an NSAID, ethanol or both. Information about total and over-the-counter sales of ibuprofen and diclofenac during the study period was collected.

There were 106 cases of acute renal failure. Of these, 21 (20%) had AFPS which amounts to an average incidence of 20.1/million/year. The incidence increased during the study period (Table 1). None of the AFPS patients had a history of kidney disease. Eighteen patients were males, and the median age was 26 (18–35) years. There was information about recent consumption of NSAIDs in 15 patients (ibuprofen in 8, diclofenac in 2, both in 2 and unknown type in 3), ethanol in 15 patients, either in 20 patients and both in 9 patients. The laboratory results are shown in Table 1. The sales figures of the NSAIDs were high, and they increased during the study period, especially the over-the-counter sales of ibuprofen (Table 2).

This retrospective study underestimated the country-wide incidence of AFPS; an unknown number of patients who sought the advice of their general practitioners were never admitted to the hospital since the consultant nephrologist recognized AFPS upon description. In spite of this, the study revealed the largest body of material of AFPS that has been reported since the suprofen experience. Moreover, the study showed that AFPS is a common presentation of acute renal failure in young adults in Iceland.

The scarcity of reports indicates that AFPS is uncommon. However, AFPS may be underreported. The incidence of AFPS is high in Iceland which can possibly be explained by heavy consumption of NSAIDs in a country where binge drinking is common. There may be a causal relationship between the simultaneous increases in the incidence of AFPS and the over-the-counter sales of ibuprofen.

There is uncertainty of whether the kidneys recover completely or whether there is residual renal damage after AFPS.

Conflict of interest statement. None declared.

Table 1. The year of diagnosis and the laboratory results of the patients who sought assistance in the emergency room at Landspitali University Hospital because of acute flank pain syndrome

| Year (Period) | Serum creatinine* (µmol/L) | CRP (mg/L) | Urine density (g/mL) | Urine protein | Urine red cells (per hpf) | Urine white cells (per hpf) | US kidneys | Kidney biopsy |
|---------------|---------------------------|------------|----------------------|---------------|--------------------------|---------------------------|------------|--------------|
| 1998          | Max: 179 Follow-up (day): 122 (7) | 1.007      | +                    | 10–25         | 1–2                     | †echo normal              |            |              |
| 1998          | 238 Follow-up (day): 181 (6) | 1.007      | +                    | 2–5          | 2–5                     | †echo ATN                 |            |              |
| 2000          | 178 Follow-up (day): 137 (5) | 1.006      | +                    | 5–8          | 3–5                     | †echo                      |            |              |
| 2001          | 236 Follow-up (day): 127 (10) | 1.006      | +                    | 5–10         | 0–2                     | †echo                      |            |              |
| 2003          | 330 Follow-up (day): 99 (13) | 1.010      | +++                   | 5–10         | 1–2                     | †echo ATN                 |            |              |
| 2003          | 215 Follow-up (day): 97 (7) | 1.010      | +++                   | 1–2          | 1–2                     | normal                    |            |              |
| 2004          | 256 Follow-up (day): 112 (7) | <1.005     | +++                   | 0–1          | 2–5                     | †echo normal              |            |              |
| 2004          | 189 Follow-up (day): 56 | 1.005      | +++                   | 0–2          | 2–5                     | normal                    |            |              |
| 2005          | 251 Follow-up (day): 108 (11) | <1.005     | ++                    | 1–2          | 0–5                     | †echo                      |            |              |
| 2005          | 243 Follow-up (day): 100 (4) | <1.005     | ++                    | 0            | 0–1                     | †echo                      |            |              |
| 2005          | 256 Follow-up (day): 204 (4) | 1.010      | +++                   | 2–5          | 2–5                     | normal                    |            |              |
| 2005          | 166 Follow-up (day): 93 (24) | <1.005     | (+)                   | 5–10         | 2–5                     | †echo                      |            |              |
| 2006          | 137 Follow-up (day): 85 (10) | 1.020      | –                     | 0            | 5–10                    | normal                    |            |              |
| 2006          | 202 Follow-up (day): 104 (20) | 1.010      | –                     | 0–1          | 2–5                     | †echo                      |            |              |
| 2006          | 427 Follow-up (day): 158 (5) | <3         | 1.025                 | 5–10         | 1–2                     | †echo normal              |            |              |
| 2007          | 252 Follow-up (day): 104 (6) | <1.005     | –                     | 2–5          | 1–2                     | †echo                      |            |              |
| 2007          | 381 Follow-up (day): 207 (6) | <1.005     | +++                   | 1–2          | 1–2                     | †echo                      |            |              |
| 2007          | 261 Follow-up (day): 76 (15) | 1.015      | +++                   | 5–10         | 10–25                   | ATN                       |            |              |
| 2007          | 529 Follow-up (day): 97 (23) | 1.020      | +++                   | 2–5          | 2–5                     | †echo                      |            |              |
| 2007          | 320 Follow-up (day): 85 (13) | 1.015      | +++                   | 0–1          | 0–1                     | †echo                      |            |              |
| 2007          | 286 Follow-up (day): 97 (79) | 1.010      | –                     | 1–2          | 0–1                     | †echo                      |            |              |

Gaps indicate missing information. CRP, C-reactive protein; hpf, high-power field; US, ultrasonography; †echo, increased echogenicity; ATN, acute tubular necrosis.

*Reference range 100 µmol/L for males and 90 µmol/L for females.
Lack of MRI neurohypophyseal bright signal in a child with congenital nephrogenic diabetes insipidus

Sir, Congenital nephrogenic diabetes insipidus (CNDI) is a rare disease characterized by the inability of the kidney to respond to arginine vasopressin (AVP). The absence of the neurohypophyseal ‘bright signal’ on T1 sequence magnetic resonance imaging (MRI) is considered as an argument in favour of the diagnosis of central diabetes insipidus (CDI). This observation is challenged as we hereby present a case of a child diagnosed with CNDI and who did not present MRI pituitary bright signal.

A 6-month-old male presented with failure to thrive, polyuria and polydypsia. Family history revealed that the mother, 35 years of age, had been presenting polydypsia and polyuria, and she was investigated at the age of 6 years with no concluding diagnosis. The patient’s physical exam showed a weight of 5215 g (−3 DS) and clinical signs of dehydration. The patient’s plasma sodium level was 155 mmol/L, osmolality 305 mOsm/kg and urine osmolality 150 mOsm/kg. Brain MRI showed in T1 sequences the absence of the posterior pituitary bright signal suggesting the diagnosis of CDI (Figure 1). The child was treated with synthetic AVP analogue 1-desamino-8-D-arginine vasopressin (DDAVP) without improvement, which led to the consideration of CNDI. The diagnosis was confirmed by an elevated serum level of AVP of 214 pmol/L (reference value ≤4.34 pmol/L) and by genetic analysis demonstrating a T106C mutation in the V2R (X-linked CNDI). The child was treated with thiazide diuretic and increased fluids with restricted sodium intake. This resulted in catch-up growth and improved neurological development. A follow-up MRI was performed 6 months after the start.

Fig. 1. Sagittal T1 image shows absence of the posterior pituitary bright signal.