overdose, where continuous venovenous haemodiafiltration (CVVHDF) led to a significant decrease in blood levels. A 54-year-old woman was admitted to our intensive care unit after a VA overdose. She was unconscious and required mechanical ventilation. Blood VA level on admission was 1664 µg/mL. The patient’s condition progressively worsened. The day after admission, she demonstrated most of the VA poisoning symptoms. Despite supportive care, her status deteriorated, leading to multiple organ failure. CVVHDF was initiated for acute renal failure and anuria with an AN69 hollow-fibre dialyzer of 0.9 m² (Hospal, Lyon, France), using the predilutional method, with blood flow set at 120 mL/min. The dialysate and substitution fluid rates were 1000 mL/min and 2000 mL/min, respectively (Hemosol, Hospal, Lyon, France). Arterial blood samples were collected from the sampling point of the dialyzer, which is at a point before the blood passes through the haemofilter. Paired ultradiafiltrate samples were collected. VA concentration was measured by a fluorescence polarization immunoassay. VA clearance was determined as \( C_l = \frac{C_{UF} \times V_{UF}}{C_A \times t} \) where \( C_{UF} \) and \( C_A \) are ultradiafiltrate and arterial serum VA concentrations at the midpoint of the time of collection, respectively; \( V_{UF} \) is ultradiafiltrate volume and \( t \) is the time of collection. The sieving coefficient (Sc) was calculated as \( Sc = \frac{C_{UF}}{C_A} \). (Table 1).

VA is a small (144 Da), water-soluble molecule with a volume of distribution ranging from 0.1 to 0.5 L/kg. At therapeutic levels, VA is almost completely bound to plasma proteins; thus drug removal by extrarenal epuration is negligible. In the case of overdose, a much larger percentage of VA is unbound and so accessible to extrarenal epuration techniques [3]. Johnson [4] reported that the use of HD with a high dialysate flow rate (800 mL/min) is effective in obtaining excellent clearance of the drug (>80 mL/min). Hicks [5] found a marked decrease in serum VA occurring after 7.7 h of HD, and an improvement of VA half-life from 31.3 to 2.25 h. HD can be difficult to perform (particularly with high blood or dialysate flow rates) in patients with haemodynamic instability. In such a case, continuous renal replacement therapies may be an alternative, but very few data are available on their efficacy. Our results suggest that CVVHDF, although less effective than HD, significantly lowers VA blood concentration in the case of overdose. Indeed, no definitive conclusion about the clinical usefulness of this technique can be drawn from these data.

Conflict of interest statement. None declared.

### Renal artery aneurysm in a cadaveric donor kidney

Sir,

Aneurysms of the renal artery are rare and have an estimated incidence of 0.09% in the general population [1]. Although rare, they are more commonly found in the fourth to sixth decades of life. With increasingly more donor kidneys being retrieved from an older population, it is important to be aware of this uncommon but serious condition. The literature is scarce on the incidence of renal artery aneurysm in donor kidneys. We present a case of a complex renal artery aneurysm, being incidentally found in a cadaveric donor kidney.

#### Case

We were offered a left cadaveric kidney from a 69-year-old female, retrieved by a different unit in the country. The cause of brain death was a large intracerebral haemorrhage. The donor was known to have hypertension that was well controlled with co-amiloride, a normal kidney function and no other significant medical history. On retrieval, the left kidney was found to have one artery and two veins.

While preparing the kidney prior to transplantation, we found a 1.5 cm, saccular, thin walled aneurysm close to the hilum of the kidney that had not been noticed during retrieval (Figure 1). The aneurysm was located at the branch point of the renal artery into multiple small branches; these were all aneurysmal as well. It was deemed surgically impossible to reconstruct all of these aneurysmal vessels and hence the kidney was not used for the purpose of transplantation. As there was consent for the purpose of research, the aneurysmal segment was excised and sent...

### Table 1. Valproic acid blood and ultradiafiltrate concentrations, clearance, and sieving coefficient.

| Valproic acid concentration, µg/mL | ICU admission Hours after start of CVVHDF |
|-----------------------------------|------------------------------------------|
|                                   | 0       | 4       | 8       |
| Blood                             | 1664    | 943     | 758     | 417     |
| Ultradiafiltrate                  | 335     | 303     |          |
| Valproic acid clearance, mL/min   | 11      |         |         |
| Sieving coefficient               | 0.44    |         |         |

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for histopathology and the kidney was sent for research purposes.

The histology of the aneurysmal segment revealed marked thinning of the arterial wall with widespread fragmentation and loss of elastic fibres in the tunica media, with increased amounts of mucopolysaccharide matrix material (so-called cystic medial degeneration). The right kidney from the same donor had normal anatomy and was successfully transplanted in another unit.

The aetiology of these aneurysms is unclear, although they appear to be related to arterial fibrodysplasia that is exaggerated at the branch points in the renal vasculature due to discontinuities in the internal elastic lamina at these points [2]; in our case ‘cystic medial degeneration’ was found on histological examination. The risk of rupture is low, but it carries a mortality rate of up to 80% [1,3–5].

There are case reports of laparoscopic nephrectomy and \textit{ex vivo} repair of simple renal artery aneurysms in live related transplants [6–9].

Our aim is to raise awareness of this uncommon condition, among retrieval and transplant teams, especially in cadaveric and non-heartbeating kidneys, where it can be often missed as the arterial system is collapsed and because of lack of any previous imaging. If correctly diagnosed during retrieval, this can prevent unnecessary transportation cost and the kidney, if deemed suitable for repair, can be sent to an appropriate centre with adequate surgical expertise.

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