

### PP33 THE UNEXPECTED DEADLY SHIFT

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#### **Introduction**

Dialysis disequilibrium syndrome is a syndrome characterized by wide range of neurologic symptoms attributed to cerebral oedema. It occurs either to patients when they first started on dialysis or missed multiple consecutive dialysis. Clinical manifestation ranges from mild to severe which can be fatal as what happened in this case.

#### **Case description**

A 14-year-old lady with advanced chronic kidney disease presented to emergency department with menorrhagia and shortness of breath for the past 2 weeks which progressively worsening. Upon arrival patient alert, pallor and tachypneic. Lung examination shows bilateral lower zone crepitation and oedema over bilateral lower limbs. Her laboratory parameters show normochromic normocytic anemia with hemoglobin 4.5g/dL, urea 114.3mmol/L, creatinine 3520umol/L, potassium 6.1mmol/L, pH of 7.184. bicarbonate 5.40mmol/L and base excess -22.9mmol/L. Patient started on CPAP and diuretics. Hemodialysis performed in emergency department by nephrology team. Patient became obtunded with worsening respiratory distress 2 hours into hemodialysis and intubated. Hemodialysis continued with reduced dialysis flow and urgent CT brain shows generalized

cerebral and cerebellar oedema with tonsillar herniation. Mannitol infusion administered however, patient deteriorated further and died on day 2 of admission.

#### **Discussion**

Dialysis disequilibrium syndrome is a clinical diagnosis and there is no specific test. The exact epidemiology has been rarely reported. Patient developed severe dialysis disequilibrium syndrome attributed to cerebral oedema. Dialysis caused swift removal of urea and exerts osmotic force on brain cells. In addition, lowering of intracellular pH caused dissociation of protein bound sodium and potassium which render them osmotically active. Measures taken in this case to limit the effect of cerebral oedema includes reducing the dialysis flow rate and administration of mannitol in attempt to prevent further osmotic shift.

#### **Conclusion**

In summary, prevention is the mainstay therapy in patient underwent initial hemodialysis therapy. Constant monitoring during dialysis is important to monitor and recognize development of this syndrome. Intervention such as reducing dialysis flow rate and mannitol infusion can help to reverse and halt the effect of osmotic shift.

#### **Keywords**

Dialysis disequilibrium syndrome, Osmotic shift, Cerebral oedema