Diabetes insipidus (DI) and fluid therapy

The treatment goals- minimise free water loss, reverse hypovolaemia and hyperosmolality.

- DI can occur in up to 80% of BD patients, is easily recognisable and should be treated promptly on clinical grounds to prevent hyperosmolality and hypovolaemia.
- Donor hypernatraemia has been associated with poorer outcomes for liver transplant recipients, particularly if left uncorrected, and has been reported to adversely affect kidney allograft function.
- Hypovolaemia increases vasoconstrictor requirements and compromises organ perfusion
- Desmopressin (DDAVP: 1-desamino-8-D-arginine vasopressin) should be given early if diabetes insipidus is suspected. After brain death, polyuria (≥3mL/kg/hr) and/or rising serum sodium are sufficient triggers to begin treatment because hypernatraemia can develop very quickly (don't wait for urine biochemistry).
- DDAVP IV bolus 4–8 μg (paediatric dose: 0.25–2 μg) and repeated if polyuria recurs. In patients with hypotension, vasopressin (arginine vasopressin) can be given as an IV infusion at a dose of 0.5-2.0 U/h (paediatric dose: 0.002-0.04 U/kg/h), titrated to urine output goals of 0.5–3 mL/kg/h for adults and children.
- Note- Vasopressin at doses that raise BP does not always control DI. Some protocols for diabetes insipidus treatment in children add vasopressin to IV low-sodium fluid, again titrated to urine output.
- Preferred IV fluid resuscitation is water for injection through a CVC rather than 5% glucose which will precipitate insulin requirement.

Euvolaemia is compatible with donation of all organs including lung and kidneys although higher rates of lung donation are associated with a minimal donor positive fluid balance.

- The assessment of volume status is similar to that in patients with competent haemodynamic control but more careful monitoring is required as the central reflexes and neurohumoral homeostasis of volume and electrolytes may be lacking.
- Transfusion of blood and blood products is occasionally necessary. Anaemia is commonly due to inter-current bleeding, exacerbated by coagulopathy, dilution from fluid administration and repeated blood sampling.
- Coagulopathy should be actively treated. It may occur secondary to tissue damage in trauma, particularly neurotrauma, inducing fibrinolysis and thrombocytopenia, or can be due to dilution and is worsened by hypothermia.