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### Iatrogenic hyponatraemia

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## Current News

**Possibility of water overload with severe hyponatraemia developing after the infusion of dextrose/0.18% saline (advice issued by the Royal College of Paediatrics and Child Health)**

The Royal College of Anaesthetists has been asked by the Royal College of Paediatrics and Child Health to disseminate the following information:

There is a possibility of water overload with severe hyponatraemia developing after the infusion of dextrose/0.18% saline. The issue has been discussed by both the Medical Control Agency/Committee on Safety of Medicines and by the Joint RCPCH/NPPG Standing Committee on Medicines. The issue has arisen because of a recent report of a case of fatal hyponatraemia in a child following the use of 4% dextrose/0.18% saline after surgery.

However, a review of the literature shows that acute hyponatraemia in children following administration of hypotonic fluids, intravenously or orally, is well documented (at least five publications) from as far back as the late 1960's. None of the published reports relates to the use of 4% dextrose/0.18% saline but rather refer to hypotonic fluids. In contrast 4% dextrose/0.18% saline is isotonic before being administered but is effectively hypotonic in the sick child once the dextrose is metabolised. Children in the post-operative period are particularly susceptible to serious and occasionally fatal neurological complications of acute hyponatraemia and sick children in 'stressful' situations may also be at additional risk.

The most recent case suggests that although this phenomenon is not new, the administration of hypotonic post-operative intravenous fluids (or fluids which are isotonic in vitro but hypotonic in vivo) is still occurring with potentially serious consequences. The joint RCPCH/NPPG Standing Committee on Medicines concluded that this was an issue of clinical practice rather than a product defect. Nevertheless, members agreed that there is genuinely a risk, namely that:

1. Intravenous fluids, particularly 4% dextrose/0.18% saline, should be prescribed with caution, especially to children in the post-operative period;
2. After surgery, fluid balance should be carefully monitored. Clinicians should ensure that the fluid used to replace losses matches the losses;
3. Serum electrolytes should be measured at the start of and regularly during, intravenous fluids.

Any queries relating to the above should be made to:

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