Physiologically composed balanced isotonic electrolyte solutions are beneficial for maintaining homeostasis, shifting the status more towards the normal range in patients with preexisting imbalances and have a wide margin of safety in case of accidental hyperinfusion” Sümpelmann et al (2019).

Abstract:

PURPOSE OF REVIEW: The composition and type of intravenous fluids during paediatric anaesthesia have been subjects of debates for decades. Errors in perioperative fluid management in children may lead to serious complications and a negative outcome. Therefore, in this review, historical and recent developments and recommendations for perioperative fluid management in children are presented, based on physiology and focused on safety and efficacy.

RECENT FINDINGS: Optimized fasting times and liberal clear fluid intake until 1 h improve patient comfort and metabolic and haemodynamic condition after induction of anaesthesia. Physiologically composed balanced isotonic electrolyte solutions are safer than hypotonic electrolyte solutions or saline 0.9% to protect young children against the risks of hyponatraemia and hyperchloraemic acidosis. For intraoperative maintenance infusion, addition of 1-2% glucose is sufficient to avoid hypoglycaemia, lipolysis or hyperglycaemia. Modified fluid gelatine or hydroxyethyl starch in balanced electrolyte solution can safely be used to quickly normalize blood volume in case of perioperative circulatory instability and blood loss.

SUMMARY: Physiologically composed balanced isotonic electrolyte solutions are beneficial for maintaining homeostasis, shifting the status more towards the normal range in patients with preexisting imbalances and have a wide margin of safety in case of accidental hyperinfusion.

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