

Clinical Practice Guideline: Maintenance Intravenous Fluids in Children.

Leonard G. Feld, Daniel R. Neuspiel, Byron A. Foster et al.

SUBCOMMITTEE ON FLUID AND ELECTROLYTE THERAPY.

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Background & Objectives: IVFs are required if sufficient fluids cannot be provided by using enteral administration. Concerns have been raised that use of hypotonic fluids results in a high incidence of hyponatremia. This guideline is to provide an evidence-based approach for choosing the tonicity of maintenance IVFs in most patients from 28 days to 18 years of age who require maintenance IVFs

Methods: In April 2016, the American Academy of Pediatrics (AAP) convened a multidisciplinary subcommittee who were skilled in systematic reviews. This guideline applies to children 28 days to 18 years of age in surgical (postoperative) and medical acute-care settings, including critical care and the general inpatient ward. This guideline DOES NOT apply to children with neurosurgical disorders, congenital or acquired cardiac disease, hepatic disease, cancer, renal dysfunction, diabetes insipidus, voluminous watery diarrhea, or severe burns; neonates who are younger than 28 days old or in the NICU; or adolescents older than 18 years old.

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



Hypotonic IVF vs Isotonic IVF as Maintenance therapy: Clinical Practice Guideline

Results:

1. Hyponatremia: These data strongly reveal an increased risk of hyponatremia when children receive hypotonic versus isotonic IVFs.
2. Hypernatremia: The available data do not demonstrate an increased risk of hypernatremia associated with the use of isotonic IVFs.
3. Hyperchloremic metabolic acidosis : Researchers in the majority of studies did not specifically evaluate the development of acidosis or report on it as a complication.
4. Fluid overload : To determine any association between fluid tonocity and fluid overload in patients who are non-critically ill, more evidence is required.

Conclusion : The AAP recommends that patients 28 days to 18 years of age requiring maintenance IVFs should receive isotonic solutions with appropriate potassium chloride (KCl) and dextrose because they significantly decrease the risk of developing hyponatremia. (evidence quality: A; recommendation strength: strong).

The subcommittee's recommendation to use isotonic fluids when maintenance IVFs are required does not mean that there are no indications for administering hypotonic fluids or that isotonic fluids will be safe in all patients.

EXPERT COMMENT

"Clinicians should be aware that even patients receiving isotonic maintenance IVFs are at sufficient risk for developing hyponatremia depending on underlying clinical situations. If an electrolyte abnormality is discovered, this could provide useful information to adjust maintenance fluid therapy."

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With warm regards,

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IAP PRESIDENT 2020**Reference**

Clinical Practice Guideline: Maintenance Intravenous Fluids in Children. Leonard G. Feld, Daniel R. Neuspiel, Byron A. Foster, Michael G. Leu, Matthew Garber, Kelly Austin, Rajit K. Basu, Edward E. Conway, James J. Fehr, Clare Hawkins, Ron L. Kaplan, Echo Rowe, Muhammad Waseem, Michael L. Moritz, SUBCOMMITTEE ON FLUID AND ELECTROLYTE THERAPY. Pediatrics Dec 2018, 142 (6) e20183083; DOI: 10.1542/peds.2018-3083