The Role of Intravenous Hydration in Safe Initiation of Home Parenteral Nutrition

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Background

Home parenteral nutrition (HPN) can be successfully initiated in the home setting with careful evaluation and management by an experienced nutrition support team (NST).[1,2] Safe candidates for HPN initiation include medically stable patients with an appropriate indication, a safe environment, and the means for reliable follow-up. However, some patients are not appropriate to start directly with HPN due to logistical reasons or the risk of refeeding syndrome (RFS).[2]

Consensus Recommendations for RFS provide guidance regarding recognizing and managing risk.[3] An experienced NST that provides individualized care can recommend intravenous (IV) hydration before initiating HPN to expedite the initiation of therapy and normalize blood chemistry to mitigate the risk of RFS.

Purpose

The purpose of this study is to evaluate the impact of IV hydration on adult patients managed by a home infusion NST who received IV hydration prior to initiating HPN. The proportion of patients who received IV hydration prior to HPN, the reason for initiating IV hydration, and the impact this intervention may have had on their care and outcomes will be described.

Methods

This retrospective review includes 200 HPN patients 18 years of age and older initiated on HPN therapy with a national home infusion pharmacy over a 6-month period from January 1, 2024, to June 30, 2024.

Data collection included baseline demographics, indication for HPN, risk of RFS, days receiving IV hydration prior to initiating HPN, number of rehospitalizations within the first 2 weeks, whether they received IV hydration, and if so, the indication for IV hydration and the components of the orders.

Data was collected via electronic medical records and deidentified into a standardized data collection form.

Results

Of the 200 total patients, 19 (9.5%) received IV hydration prior to HPN. Of these 19 patients, 16 were female, and 3 were male *(Table 1)*.

The most common indications for HPN were bariatric surgery complication (5), intestinal failure (4), and oncology diagnosis (4) *(Figure 1)*. Among these patients, 9 (47%) were at moderate RFS risk and 10 (53%) were at high RFS risk. The indications for IV hydration included 7 (37%) due to electrolyte abnormalities/RFS risk, 5 (26%) due to delay in central line placement, and 7 (37%) due to scheduling delays *(Figure 2)*.

IV hydration orders included electrolytes in 15 (79%) of the orders. All orders without electrolytes (4) had an indication related to logistical reasons *(Figure 3)*. All 19 patients started HPN within 7 days of receiving IV hydration. Two were hospitalized within the first two weeks of therapy with admitting diagnoses unrelated to HPN.

Table 1: Demographics

	BMI Average	BMI Range	Age Average	Age Range	% Female	% Male
Hydration Patients	24.2	11-45	55	30-85	84%	16%
Non-Hydration Patients	22.2	20-87	51	20-87	71%	29%
All Patients	22.4	11-52.3	51	20-87	72%	28%

Figure 1: HPN Indications of IV Hydration

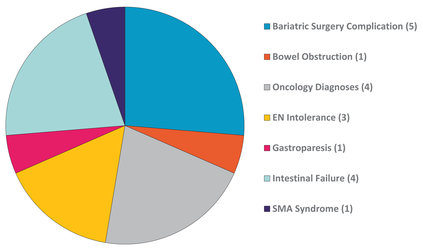


Figure 2: Indication for IV Hydration and Refeeding Risk

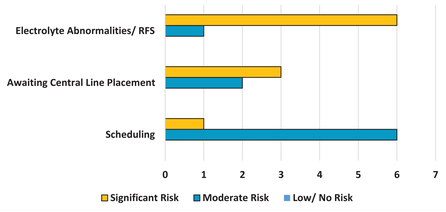
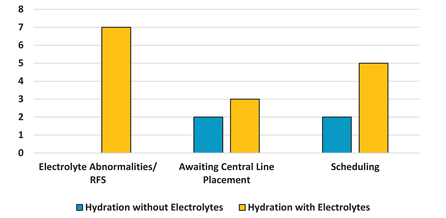


Figure 3: Indications and Types of IV Hydration



DIscussion

In this group of patients, HPN was successfully initiated in the home setting when managed by an experienced NST, preventing unnecessary hospitalizations. This study demonstrated that safe initiation of HPN may include IV hydration with or without electrolytes first, either to mitigate RFS or due to logistical reasons, when started on HPN within 7 days.

The IV hydration orders were individualized to fit the needs of each patient. This data only reflects IV hydration dispensed through the home infusion pharmacy and does not capture IV hydration received at an outside clinic. This patient population also does not include those deemed medically unstable for HPN or those not conducive to starting in the home setting for other factors.

Conclusion

Future research should account for these limitations and detail IV hydration components, dosing, and frequency of orders.

References

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[3] Da Silva JS, Seres DS, Sabino K, et al. ASPEN consensus recommendations for refeeding syndrome. Nutr Clin Pract. 2020;35(2):178-195.

Disclosures

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Ashley Voyles; Jillian Palmer; Kristin Gillespie; Suzanne Mack; Tricia Laglenne; Susan Dietze; Kathy Martinez: Nothing to disclose. Jessica Monczka: Fresenius Kabi, consultant.

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