Suggestion on Revision of Goals of Length Growth Rate for Preterm Infants

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Thanks to Rachael Grothen, Emily Kelley-Brown, and Beth Ogata

Introduction & Background

- The selection of growth chart can depend on local practice and preference. (Fenton vs. Olsen)
- Extrauterine growth restriction is more common in preterm infants.
- The growth goal for preterm infants should promote proportional weight per length growth, which is a marker of lean body mass deposition.
- Inappropriate length growth and fat-free mass (FFM) gains are associated with inflammation and illness as well as later neurodevelopmental problems.
- Protein, not calories, is the “rate-limiting nutrient” to weight gain.
- Increased protein intake leads to length growth without a concomitant growth on weight.

Objectives

- To identify a need for revision of current protocol in VMC NICU
- To promote proportional weight per length growth for preterm infants
- To provide close monitoring and better intervention for preterm infants

Methods

- Reviewed extensive literature about growth charts for preterm infants
- Reviewed current goals of length growth velocity for preterm infants
- Analyzed current goals of length growth velocity for preterm infants in VMC NICU

Analysis

- Average Length Growth Velocity for Preterm Infants
  - 2009 ADA Pocket Guide to Neonatal Nutrition → 0.8 – 1.1 cm / week

Goals of Length Growth Velocity for Preterm Infants

- 2015 UpToDate → 1 cm / week
- Current NICU Protocol in Valley Medical Center (VMC) → 0.8 – 1.1 cm / week

Current Protocol:

- Low value (0.8 cm/week) when starting at the 50th percentile, it is below the 3rd percentile at 37 weeks.
- High value (1.1 cm/week) when starting at the 50th percentile, it is at around the 10th percentile at 37 weeks.

Olsen Growth Chart Used at VMC:

- 50% (Average) growth velocity from the Olsen curves is 1.4 cm/week for length.

Conclusion & Suggestion

- The percentile at 37 weeks of the lower value (0.8cm/week) in the VMC protocol is too low.
- It is suggested that goal for length (linear) growth for preterm infants is 1.1 – 1.4 cm/week, which would maintain infants at around the 50th – 60th percentile (when starting at the 50th percentile) based on the Olsen growth chart.
- We can promote appropriate length growth by optimizing the protein-energy ratio, and it is critical to continue close monitoring of their growth.

PMID 16951001, 23445851, 23445844, 24873834, 5906365, 19444237, 12456909, and 24231639