

Early Human Milk Fortification on Growth Outcomes in Infants <1500g: A Retrospective Study

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INTRODUCTION

- The nutritional requirement of premature infants cannot be fulfilled with exclusive breast milk due to the greater energy, protein, fatty acids, minerals, and micronutrients that they require compared to term newborns
- Thus, the standard of care across most NICU's utilize human milk fortifier to increase nutrient density to aid their growth.
- However, the optimal timing to initiate fortification has not been established.

BACKGROUND

- Premature infants lack the placental transfer of nutrients they miss during the 3rd trimester
- Although preterm mother's milk has more protein and energy than term milk, the content of these macronutrients is still less than recommended needs
- Inadequate nutrition and/or poor postnatal growth during the NICU stay has been associated with neurocognitive impairments and poor renal function in preterm infants
- Adding HMF to human milk is necessary to provide additional calories, protein, minerals, and vitamins to premature infants
- Although there is some provider hesitancy to fortify earlier due to presumed risk of NEC, literature has NOT confirmed such association

OBJECTIVE

- To determine if VLBW infants fortified earlier (≤ 100 ml/kg/d) versus delayed (> 100 ml/kg/d) had lower EUGR rates and enhanced nutrition outcomes determined by time to reach full feeds, time to regain BW, and TPN duration in the NICU

METHODS

- **Design:** Retrospective chart review
- **Participants:** 90 infants admitted to the neonatal intensive care unit at Saint Peter's University Hospital with a birth weight of less than 1500 grams from 1/1/2021 to 3/1/2022
- The total fluids of fortification initiated, BW %, DW%, mean TPN days, time to regain BW, and time reach full feeds were compared between the 2 groups
- Infants who were SGA, IUGR, congenital anomalies, or expired during admission (n=22) were excluded (68 included).
- T-test was used for statistical significance.

DATA

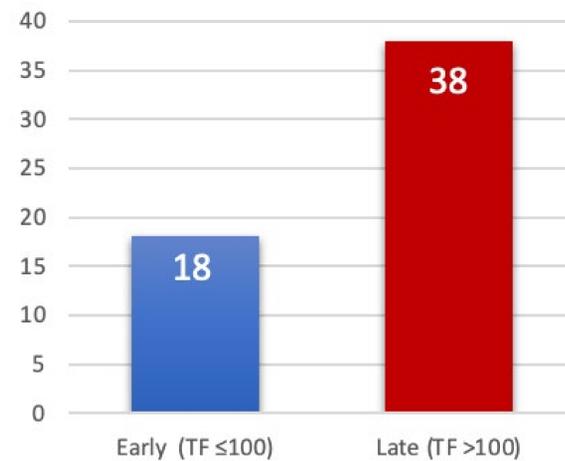


Figure 1: EUGR % in Early vs Delayed Fortification (p-value: 0.03)

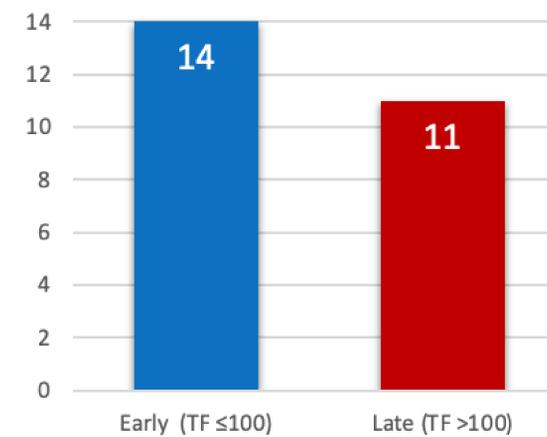


Figure 2: Mean Time (days) to reach Full Feeds (≥ 120 TF) in Early vs Delayed Fortification (p-value: 0.03)

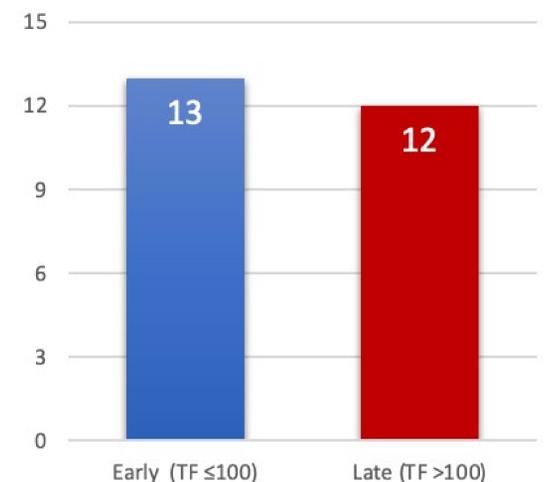


Figure 3: Mean TPN duration (days) in Early vs Delayed Fortification (p-value: 0.43)

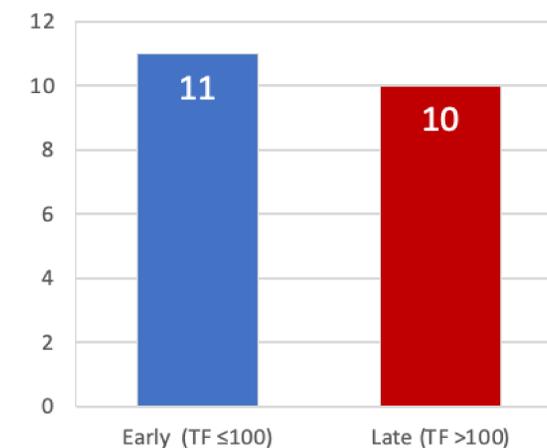


Figure 4: Mean Time to Regain BW (days) in Early vs Delayed Fortification (p-value: 0.38)

DISCUSSION

- Although mean time to reach full feeds was significantly faster in infants fortified later, the significant decline of being EUGR upon discharge in infants fortified early should pave the way to change current practices to fortify early
- EUGR is related to the impairment of growth during childhood and poor neurocognitive impairments
- Thus, this study is one of the first methods to potentially combat childhood growth impairment in this cohort

CONCLUSION

- Infants fortified earlier had a **statistically significantly** reduced percentage of being EUGR upon discharge (p-value: 0.03)
- Mean time to reach full feeds was **statistically significantly** reduced in infants fortified later (p-value: 0.03)
- Mean TPN duration was not statistically significant in the early vs delayed fortified groups
- Mean time to regain BW was not statistically significant in the early vs delayed fortified groups

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