

Continuous quality improvement practices on human milk feeding of very low birth weight infants

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Mother's own milk (MOM) is the first choice for preterm infants, while donor human milk (DHM) is the second choice. Some recent studies have found that the dosages and timing of human milk feedings play a critical role in reducing the risk of morbidities during hospitalization in preterm infants.

Our center established a Donor Milk Bank in 2013. In 2015, we started to develop a Quality Improvement (QI) protocol for MOM feeding. Interventions specified in our protocol include: systematic education for parents, pumping at bedside, early and frequent milk expression, oral care with colostrum, kangaroo mother care on the NICU ward, non-nutritive breastfeeding, standardized feeding management, feeding advancement for optimal growth, including optimal fortification, family integrated care, and training for parents before infant discharge.

In each cycle of QI, new approaches were initiated and aimed to encourage the provision of MOM. The dose of human milk and the data of maternal and infant health were prospectively recorded during the infant hospital stay. By consistently implementing QI, we have achieved infant feeds composed of 80% MOM on average during the first 28 days' post-birth and during hospitalization. More importantly, we have reduced the incidence of feeding intolerance, necrotizing enterocolitis (NEC), bronchopulmonary dysplasia (BPD), late-onset sepsis (LOS) in preterm, and have shortened the hospital stay period.^[1,2]

In 2015, we collected baseline breastfeeding data for very low birth weight (<1500g) NICU infants, where the breastfeeding rate was 37.2%^[3]. Since 2017, we have developed a multicenter clinical research database and expanded breastfeeding QI practice in more than five NICU centers in Jiangsu province, China. In one year, the average rate of breastfeeding improved to 73.8%^[4]. In addition, the percentage of total enteral feedings with MOM and the average weight-adjusted daily dose of MOM were significantly increased, resulting in higher human milk usage during NICU infant hospital stays^[5]. Our data also shows that the daily threshold amount of $\geq 50\text{ml}/(\text{kg} \cdot \text{day})$ human milk in the first four weeks of life was associated with lower incidence of BPD, NEC, LOS, and extrauterine growth restriction (EUGR) in VLBW infants^[6].

In 2020 when the global COVID-19 pandemic started, we designed a digital lactation consultant intervention based on WeChat mini-program to promote MOM feeding of premature infants in the NICU. Utilizing the digital chat function of WeChat mini-program played a significant role and helped facilitate the vision of "isolated viruses, not isolated love". The effect of digital lactation consultation through WeChat mini-program increased the ratio of MOM feeding in premature infants in the NICU.

References

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