

## Letter to the Editor

### Extra-uterine Adaptation Is a Process Not Only for the Respiratory System But Also the Gastrointestinal System

There is a process of physiological adaptation when the fetus becomes a neonate.<sup>1</sup> Transitional delay in postnatal pulmonary adaptation as a result of failure of lung fluid clearance is common among hospitalised patients in the neonatal intensive care unit (NICU). Nutritional support for gastrointestinal growth and function is critical in the care of newborns.<sup>2</sup> *In utero*, many nutrients are provided via the umbilical circulation; for this reason, the adaptation to enteral nutrition is one of the difficulties encountered by the newborn after birth. We investigated the frequency of feeding intolerance among neonates who experienced mild neonatal respiratory distress.

Neonates born between 34 0/7 and 41 6/7 weeks gestational age and admitted to the NICU for mild respiratory distress were enrolled in this study. Inclusion criteria were neonates with grunting and mild signs of respiratory distress, who recovered fully by 48 hours. Neonates with a genetic abnormality or congenital anomaly, prolonged rupture of membranes, maternal infection and meconium-stained amniotic fluid were excluded. Neonates were fed either by mouth or through a feeding tube; intravenous fluids were given if feeds were not tolerated. Each feeding was recorded. Feeding intolerance criteria included observation of at least one of the followings such as abdominal distention, vomiting more than half of the feeding amount repeatedly, and half of the feeding amount as the residual before the next feeding.

During the study period, 177 neonates were hospitalised because of mild respiratory distress. The ratio of female/male neonates was 57/120. The mean gestational age and mean birth weight of the neonates were 37±1.6 weeks and 3023±470 g respectively. The mean duration of nCPAP was 6.3 hours and the mean duration of O<sub>2</sub> supplement was 12.3 hours.

In total, 47 (26%) neonates showed gastrointestinal problems in the early postnatal period; 31 (17.8%) neonates had vomiting, 12 (6.9%) had abdominal distention, and 27 (15.5%) had feeding difficulty. Moreover, 11 (6.3%) neonates had delayed meconium passage (<24 hours) (Table 1). The full enteral feeding

**Table 1** Baseline characteristics of patients who have feeding intolerance

	Patients with feeding intolerance (n=47) n (%)
Gender	
Male	33 (70.2)
Female	14 (29.8)
Route of birth	
NSVD	11 (23.4)
Cesarean section	36 (76.6)
Types of feeding intolerance	
Vomiting	31 (17.8)
Abdominal distention	12 (6.9)
Feeding difficulty	27 (15.5)
Delayed meconium passage	11 (6.3)

NSVD: normal spontaneous vaginal delivery

time was 4 days (median) (range, 1-11 days) for the feeding intolerant group and discharge from the hospital occurred at a median duration of 5 days (range, 1-12 days). The patients with feeding intolerance had significantly longer full enteral feeding times and a longer duration of hospitalisation than those who did not have feeding intolerance ( $p<0.001$ ).

It is known that preterm neonates have not achieved full maturation of their gastrointestinal tract.<sup>3</sup> In our study, we observed that even for term and near-term neonates, they can have feeding intolerance as well. Therefore, not only maturation but also adaptation of the gastrointestinal tract is needed to ensure adequate bowel function. In conclusion, neonates with mild respiratory distress may have persistent gastrointestinal symptoms even after respiratory symptoms improved. However, it is a transient phenomenon. The family and healthcare workers should be aware of such association and avoid unnecessary investigations and intervention.

## References

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