Two important factors affecting the transition to breastfeeding in preterm infants: corrected age and periventricular leukomalacia

Dear Editor,

I have read the article of Aytekin et al. (1) titled **“The effect of feeding with spoon and bottle on the time of switching to full breastfeeding and sucking success in preterm babies”** with interest. In this study, spoon feeding and bottle feeding methods which are used as assistive methods in the period of transition from enteral feeding to breastfeeding were compared. It was found that the time for transition to full breastfeeding was significantly shorter in preterm babies who were spoon-fed compared to the ones who were bottle-fed ($p<0.05$). Sufficient sucking occurs in the 32-33rd week at the earliest in preterm babies (2). This is related with brain development and central nervous system myelination (2, 3). In the study of Aytekin et al. (1), the gestational week as corrected age at which the transition from enteral feeding to oral feeding occurred was not reported. Instead, it was reported that the body weights were similar in both study groups at the time of onset of breastfeeding and thus both groups had similar maturational behaviors. In preterm babies, increase in body weight may vary depending on addition of fortifiers, development of oral intolerance in the baby and daily amounts of intake of calorie, protein, fat, carbohydrate and other elements (4). Therefore, corrected gestational age should be reported as an indicator of neurological maturation instead of body weight (2, 3).

In preterm babies, detection of pathological conditions including intracranial hemorrhage (ICH) and periventricular leukomalacia (PVL) which may occur while development of the brain continues is important in

terms of follow-up and treatment (3). In previous years, transfontanel ultrasonography (TFUS) screening was recommended for babies born before the 30th gestational week, whereas it has been recommended that this screening should be performed in all babies up to the 36th gestational week in recent years (5). In a study performed by Ballardini et al. (5), the TFUS findings of babies born at the 33-36th gestational age were examined retrospectively. Pathological TFUS finding (PVL, ICH, subependymal cyst, sinus vein thrombosis) was detected in 13% of a total of 724 babies. The most common finding was reported as PVL. It was reported that 78 (83%) of these patients who were found to have pathology were asymptomatic and 19 (20%) had no risk factor. In the study of Aytekin et al. (1), it was reported that babies who had no congenital malformation which would lead to asphyxia and affect respiration, who had spontaneous respiration and who had no cranial hemorrhage or hyperbilirubinemia which would require exchange transfusion were included in the study. However, it was not reported if TFUS was performed or not. Considering that PVL can develop even in patients without risk factors or marked neurological finding, it is not clear if the patient group of Aytekin et al. (1) had PVL which could interrupt development of sucking ability.

In conclusion, it should be kept in mind that the sucking ability in preterm babies is related with gestational age and each baby should be evaluated according to his/her own gestational week. In addition, it should be kept in mind that brain imaging should be performed in order to detect pathological conditions including PVL which

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would disrupt the natural process in neurological maturation in preterm babies.

References

1. Aytekin A, Albayrak EB, Küçükoğlu S, Caner İ. Erken doğmuş bebeklerde kaşık ve biberonla beslenme yöntemlerinin tam anne memesine geçiş süresi ve emme başarısı üzerine etkisi. Turk Arch Ped 2014; 49: 307-13. [CrossRef]
2. Davanzo R, Strajn T, Kennedy J, Crocetta A, De Cunto A. From tube to breast: the bridging role of semi-demand breastfeeding. J Hum Lact 2014; 30: 405-9. [CrossRef]
3. Prabhu SP, Grant PE, Robertson RL, Taylor GA. Neonatal neuroimaging. In: Gleason CA, Devaskar SU, (eds). Avery's diseases of the newborn. 9th ed. Philadelphia: Elsevier; 2012.p. 816-43. [CrossRef]
4. Poindexter BB, Schanler RJ. Enteral nutrition for the high-risk neonate. In: Gleason CA, Devaskar SU, (eds). Avery's diseases of the newborn. 9th ed. Philadelphia: Elsevier; 2012.p.952-61. [CrossRef]
5. Ballardini E, Tarocco A, Baldan A, Antoniazzi E, Garani G, Borgna-Pignatti C. Universal cranial ultrasound screening in preterm infants with gestational age 33-36 weeks. A retrospective analysis of 724 newborns. Pediatr Neurol 2014; 51: 790-4. [CrossRef]

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Dear Editor,

We thank the reader for their contributions and criticism related with our article titled "The effect of feeding with spoon and bottle on the time of switching to full breastfeeding and sucking success in preterm babies" published in the 49th edition of your journal in 2014 on the pages of 307-13.

Sucking movements are present from the 28th gestational week. However, the coordination between sucking, swallowing and breathing occurs at the 32-34th gestational week at the earliest (2-4). In our study, it was found that the mean age of the preterm babies was 32.16±1.19 weeks in the spoon feeding group and 32.37±1.00 weeks in the bottle feeding group. Considering the objective of the study, the time of switching to full breastfeeding, but not the time of switching to oral feeding was investigated in preterm babies who were spoon-fed and bottle-fed. However, reporting the corrected age at which the babies switched to oral feeding (as the reader stated) in the part of comparison of the introductory properties of the babies would contribute to the study. Therefore, this

information is added by way of reevaluation of the study data (Table 1).

According to the analyses performed, the mean gestational age of switching from enteral feeding to oral feeding was found to be 34.45±1.10 weeks in the spoon feeding group and 34.19±1.47 weeks in the bottle feeding group. It was found that there was no statistically significant difference between the spoon feeding group and the bottle feeding group in terms of the mean gestational age of switching from enteral feeding to oral feeding ($p>0.05$, Table 1). This shows that maturation of sucking behaviour occurred approximately at the 34th gestational week in the preterm babies in both groups in accordance with the literature information and switching to oral feeding was realized (2-4). In terms of the study, it shows that both groups were equivalent before use of supportive feeding method (spoon feeding or bottle feeding) following switching to oral feeding.

Secondarily, the reader interrogated if periventricular leukomalacia (PVL) was detected in the preterm babies. Monitoring PVL has neurodevelopmental importance in preterm babies. The American Academy of Pediatrics recommends transfontanel ultrasonography screening in babies with a gestational age below the 30th gestational week (5). In our study, transfontanel ultrasonography was performed in the follow-up, though the mean gestational age of the preterm babies were 32.16±1.19 and 32.37±1.00, respectively. As reported in our article, intracranial hemorrhage was not found in any baby. In addition cystic PVL was not observed, either. However, transfontanel ultrasonography may not always be successful in indicating PVL even in preterm babies below the 30th gestational week. Therefore, it has been recommended that the groups with a high risk should be investigated using brain magnetic resonance imaging (6). The babies in our study group were aged above the 30th gestational week and had no additional risk factors. In addition, preterm babies who are found to have PVL

Table 1. Comparison of the spoon feeding and bottle feeding groups in terms of the gestational age of switching from enteral feeding to oral feeding

Characteristic	Spoon feeding group (n=37) Mean±SD	Bottle feeding group (n=35) Mean±SD	Test and p
Gestational age of switching from enteral feeding to oral feeding (weeks)	34,45±1,10	34,19±1,47	t=0,867 p=0,389

may have other neurological findings including apnea, change in tonus and seizure (7). Neurological examination was found to be normal in all our patients.

References

1. Aytekin A, Albayrak EB, Küçüköğlu S, Caner İ. Erken doğmuş bebeklerde kaşık ve biberonla beslenme yöntemlerinin tam anne memesine geçiş süresi ve emme başarısı üzerine etkisi. *Türk Arch Ped* 2014; 49: 307-13. [CrossRef]
2. Can G, İnce Z. Preterm doğanlar, intrauterin büyüme geriliği, makrozomi, çoğul gebelikler. İçinde: Neyzi o, Ertuğrul T, (yazarlar). *Pediatric. Nobel Tıp Kitabevleri: İstanbul*; 2010: 367-85.
3. Çavuşoğlu H. Çocuk sağlığı hemşireliği. Cilt 2 9. Baskı. Ankara Sistem Ofset Basımevi, Ankara; 2012: 57-110.
4. Davanzo R, Strajn T, Kennedy J, Crocetta A, De Cunto A. From tube to breast: the bridging role of semi-demand breastfeeding. *J Hum Lact* 2014; 30: 405-9. [CrossRef]
5. Prabhu SP, Grant PE, Robertson RL, Taylor GA. Neonatal neuroimaging. In: Gleason CA, Devaskar SU, (eds). *Avery's diseases of the newborn. 9th ed. Philadelphia: Elsevier; 2012. p. 816-43. [CrossRef]*
6. Gressens P, Hüppi PS. Normal and abnormal brain development. In: Martin RJ, Fanaroff AA, Walsh MC, (eds). Fa-

naroff and Martin's neonatal-perinatal medicine disease of fetus and infant. 9th ed. Philadelphia: Elsevier; 2011. p. 887-916.

7. Sonia L. Bonifacio F, Gonzalez D, Ferriero M. Central nervous system injury and neuroprotection. Gleason CA, Devaskar SU, (eds). *Avery's disease of the newborn. 9th edition. Philadelphia: Elsevier; 2012. p. 869-91*

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