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Effect of types of milk on transfontanelle ultrasonographic changes in infants

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Background: There is growing evidence that breastfeeding improves the brain development of infants. Researchers have discovered that breastfeeding alone produces the best results for boosting a baby's brain growth. Breastfeeding can increase a baby's brain growth by 20 to 30 percent.

Aim: The aim was to compare the types of feeding on sonographic brain changes in the first 6 months of life from July 2016 to April 2017.

Subjects & Methods: It was an analytical comparative study carried out on our patients at the clinic of Al-Azhar University Hospital. Fifty healthy infants at 6 months age delivered full-term were included in the study. Congenital anomalies, chromosomal abnormalities, sepsis, jaundice and those with drug could affect the brain were excluded. We splitted the infants into three groups: those whose mothers reported that they exclusively breastfed for at least six months, those fed a combination of breast milk and formula (mixed) and those fed formula alone. Maternal and neonatal history including feeding history, general examination including anthropometric and vital signs, neurological examinations were done. Transfontanelle ultrasound examination was performed for all infants. It was performed while the infant in supine position or holded by their mothers. The scan was performed in coronal, sagittal planes for measurement of the length of corpus callosum and the transverse diameter of the fourth ventricle in mid sagittal plane and parasagittal planes. The probes used were multifrequency curvilinear probes with transducer ranging from 3-5 MHZ in all cases, transducer ranging from 7-10 MHZ for right and left ventricular horn ratio and length of corpus callosum.

Results: Right horn ventricular ratio increased significantly in formula feeding and mixed feeding infants than exclusive breastfeeding infants (4.10 ± 0.23 , 4.12 ± 0.29 , 3.72 ± 0.54 2.8) (ANOVA 5.233, P value 0.009) respectively. Left ventricle horn ratio increased significantly in formula feeding and mixed feeding in comparison to breastfeeding infants respectively (4.30 ± 0.65 , 4.28 ± 0.69 , 3.57 ± 0.98 (ANOVA 4.551, P value 0.015). No significant difference in length of corpus callosum between the 3 studied groups.

Conclusion: Enlarged ventricles' diameters in infants for feeding of artificial or mixed milk may be associated with neurological developmental changes in the future. These findings add to a substantial body of research that finds positive association between breastfeeding and children's brain developmental health.

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