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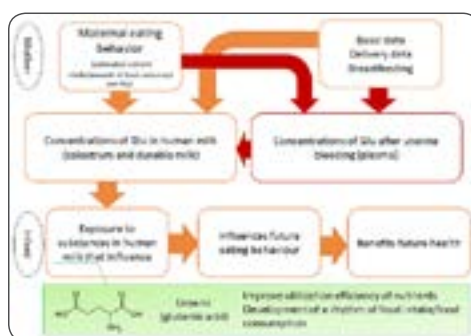
Midwifery and Women’s Health

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Relationship between maternal eating behavior and umami in human colostrum and durable milk

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Glutamic acid (Glu), which is responsible for umami, is reportedly a human protein uptake marker that improves nutrient utilization efficiency and eating behavior formation. This study clarified the relationship between maternal eating behavior (estimated nutrient intake/amount of food consumed per day) and Glu in human milk. A longitudinal observational study of 16 mothers including eating behavior surveys from late pregnancy to one month after birth was performed as well as amino acid analysis of human blood and milk. Glu concentrations in colostrum and durable milk were 38.1 ± 15.4 nmol/mL and 39.7 ± 11.4 nmol/mL respectively, higher than those of any amino acids found in milk are 28.5 and 27.2 times greater, respectively than plasma Glu concentration. There was no significant correlation between Glu concentration in plasma and in milk and or between the concentrations of amino acids necessary for plasma Glu synthesis and Glu concentration in milk. There was no significant correlation between plasma Glu concentration and maternal eating behavior, but there was a significant positive correlation between squid and octopus consumption and milk Glu concentration (colostrum: $r=0.55$, $p<0.05$; durable milk: $r=0.61$, $p<0.05$). Moreover, uterine bleeding at birth and colostrum Glu concentration were negatively correlated ($r = -0.49$, $p=0.06 < 0.1$, Spearman). This report suggests that Glu was present at a higher concentration than any amino acid in human milk. In conclusion, infants are exposed to umami through human milk consumption and the flavor could be related to taste development and influence future health. Therefore, breastfeeding is very important. Our results further suggest that control of uterine bleeding during child birth by midwives would maintain high Glu concentrations in human milk, ensuring that the infant receives breast milk with adequate concentrations of Glu and umami flavoring.



Biography

Shoko Watada has completed her MS in the Department of Clinical Nursing at Shiga University of Medical Science. She is currently conducting research as an Assistant Professor at Shiga University of Medical Science. She has worked in the Obstetrics and Gynaecology Department and the Maternal Foetal Intensive Care Unit and has expertise in mothers’ health improvement, providing care following perinatal loss and in educating midwifery students.

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