Effect of a meat quantitative model application to caregiver education on infants' weaning: a non-randomized controlled trial in 42 villages of north China

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○張淑一[1]、劉彩芳[2]、殷妍[1]、関宏岩[1]、張延峰[1]、呉琼[1]、陳藜[1]、金春華[1]、王現華[2]、孫興磊[2]、黄建[3]、霍軍生[3]、朱宗涵[4]、馬玉霞[5]、顧艶紅[6]、張霆[1]

○Shuyi Zhang[1], Caifang Liu[2], Yan Yin[1], Hongyan Guan[1], Yanfeng Zhang[1], Qiong Wu[1], Li Chen[1], Chunhua Jin[1], Xianhua Wang[3], Xinglei Sun[3], Jian Huang[4], Junsheng Huo[4], Zonghan Zhu[5], Yuxia Ma[5], Yanhong Gu[6], Ting Zhang[1]

北京首都児科研究所・児童発育栄養組学北京市重点実験室[1] 河北省石家庄趙県婦幼保健院[2] 中国 CDC 栄養と健康研究所[3] 中国医師協会児科医師分会[4] 河北医科大学[5] 大阪医科大学[6]

1. Capital Institute of Pediatrics, Beijing Municipal Key Laboratory of Child Development and Nutriomic, Beijing, China; 2. Maternal and Child Health Institute of Zhao County, Zhao County, Hebei Province, China; 3. National Institute for Nutrition and Health Chinese Center for Disease Control and Prevention, Beijing, China; 4. Pediatricians Branch for Chinese Medical Doctor Association, Beijing, China ; 5. Hebei Medical University, Shijiazhuang, Hebei, China, Pediatricians Branch for Chinese Medical Doctor Association, Beijing , China; 6. Department of Hygiene and Public Health, Osaka Medical College, Osaka, Japan

Objective: This study was to estimate of effect of application of a meat quantitative model for caregiver's education on infant's weaning in north China.

Methods: A non-randomized controlled trial was performed during 2014 in 42 villages of Zhao County, Hebei Province. Children aged 6 - 11 months old were enrolled and assigned to intervention group (n = 149) and control group (n = 114). In the intervention group, child caregivers received monthly health education provided by village health workers, which focused on in-time meat introduction with demonstration of 10 g meat model, and dietary diversity in term of vegetable and animal food. Effects of intervention were evaluated by infant's blood hemoglobin (Hb) level and caregiver's feeding practices according to WHO Infant and Young Child Feeding Indicators (2008 version). Infant's meat intakes during the past 24 hours and the past week were answered by caregiver's estimation using the meat quantitative model. Unpaired student *t* test and chi-square test was applied to analyses quantitative data and qualitative data, respectively.

Results: The proportion of infants with minimum dietary diversity was remarkable higher in the intervention group than the control group after three months of intervention (89.9 vs 78.9%, $p = 0.014$), but not significantly higher after six months of intervention (83.1 vs 86.8%, $p = 0.405$).

The estimated amount of infant meat intake in the past 24 hours was higher in the intervention group than that in the control group (mean: 6.9 vs 2.4g, $p = 0.001$) after three months of intervention, and six months of intervention (7.9 vs 4.5g, $p = 0.024$). It was significant difference of the amount of meat intake in past three months between intervention group and control group (30.5 vs 6.2g, $p = 0.001$), but was not in past six months (36.3 vs 19.7g, $p = 0.073$). Infants' meat intake in the past week increased during the investigation period and matched the trend of Hb increasing.
The Hb increasing range were larger in the intervention group than that of the control group after three months of intervention（2.6 vs -0.2g/L, $p = 0.074$）) and significantly larger than that of after six months of intervention ((8.3 vs 4.3g/L, $p=0.034$).

Conclusion: Using a meat quantitative model for weaning education was acceptable by infants' caregivers, easy to estimate the amount of infant meat intakes, and improved home feeding practices. Meanwhile, infant's Hb increasing in intervention group suggested this model is effective.