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Early versus late nutritional support and bronchopulmonary dysplasia in very low birth weight infants

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A lthough nutritional support seems to be crucial in the fetal lung development, few studies have been conducted to determine the importance of early nutritional support for BPD prevention. We retrospectively reviewed the medical records of 188 VLBW infants with gestational age <30+0 weeks. Non-protein calorie (NPC) intake and amino acid (AA) intake was calculated in the early (from day 1 to day 14 after birth) and the late (day 29 after birth to postmenstrual age 36+0 weeks) nutritional period. The risk of BPD was analyzed by using multivariate analysis and the inverse-probability-of-treatment weighting (IPTW) method. The mean birth weight and gestational age were 944.7±286.8 g and 27.0±1.9 weeks. The incidence of BPD was 44.1 %. The mean early NPC and late NPC intake were 55.4±14.4 kcal/kg/d and 91.1±10.4 kcal/kg/d, respectively. The early AA and late AA intake were 2.7±0.6g/kg/d and 3.3±0.5 g/kg/d, respectively. The incidence of BPD was significantly greater in the early low NPC (<50 kcal/kg/d) group (odd ratio 7.354, P<0.001). The association remains significant in multivariate (odd ratio 3.258, P=0.009) and IPTW (odd ratio 3.771, P=0.002) analysis after adjustment for BPD-associated risk factors such as ventilator-dependency at 28 days of life, postnatal dexamethasone therapy, and sepsis. In conclusion, low NPC intake during the initial two weeks of life was significantly associated with the development of BPD in VLBW infants. Further study is required to clarify the optimal early nutritional strategies for the prevention of BPD.

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