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Commentary

Effect of High Protein Content in Newborn's Formula Milk

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DESCRIPTION

Childhood obesity is a growing public health concern around the world, as its incidence among children of all ages continues to rise. For example, between 1963-1965 and 1999-2000, the number of obese children aged 6 year to 11 years increased significantly in high income countries, rising from 4.2% to 15.3%. Childhood obesity is on the rise worldwide, affecting not just the richest but even the poorest countries. The significant prevalence of the disorder, as well as its persistence and subsequent links to chronic diseases in adulthood, need the development of prevention interventions.

Breastfeeding is one of the most researched issues in terms of prospective weight loss prevention. Breastfeeding has been shown to protect against overweight and obesity, with a 13% reduction in the chance of excess weight gain between childhood and adulthood. The impact of the duration of exclusive breastfeeding on the same hazards has received more attention. Regardless of whether breastfeeding is exclusive or not, it appears that a shorter length of nursing has fewer protective effects on the risk of overweight and obesity than a longer duration. Finally, when comparing exclusive *vs.* non-exclusive breastfeeding, the evidence is inconclusive as to whether the former has a stronger protective impact than the latter.

Many features of the assessed research, including as methodology and clinical criteria are varied and some intervention studies, despite indicating good effects on breastfeeding, were ineffective based on the child's anthropometric measurements. Both the PROBIT study, which used the WHO/UNICEF "Baby-Friendly Hospital Initiative" model to promote breastfeeding at the hospital level and the study, which also focused on breastfeeding promotion, report positive effects in terms of exclusivity and duration of breastfeeding without being effective on weight outcomes. However, because the studies linking breastfeeding to development measures are all observational (due to the unethical nature of a randomization of breast milk *vs.* manufactured milk) any confounding factors in the research can't be totally eliminated.

Formula milk

The protein level of formula milk in the first year of life has been studied in relation to the risk of becoming overweight or obese. In the absence of conclusive data on body composition, reduced protein formulas are related with lower weight and weight z-scores between 6 month and 12 month, lower BMI between 12 month and 6 years of age and a lower risk of obesity at 6 years. The protein content of milk in the trials examined varied greatly, with amounts overlapping between those classified as "lower protein formula" (1.1-2.1 g/100 mL) and "higher protein formula" (1.5-3.2 g/100 mL).

Higher protein consumption in the first two years of life is linked to a higher BMI in children, indicating that formulas with lower protein and energy content than those traditionally used in the United States can support appropriate growth. As a result, lowering the protein level of newborn milks appears encouraging, but long-term studies are needed to see how helpful it is over time.

These studies are taken into account by the current EFSA protein content limitations for formulated milks in the 0-12 month age range (1.8-2.5 g/100 kcal). The ESPGHAN Consensus on milks prepared for young children aged 1-3 years recommends a protein level for milks in the 6 month to 12 month range that is toward the lower end of the permissible range.

Another feature of modified milks that has been researched for its potential protective effects is the hydrolysis of milk proteins. The GINI study discovered that children who received an extensive casein hydrolysate had slower BMI growth in their first year of life, but that there were no longer any differences in BMI between children who received an extensive or partial hydrolysate *vs.* normal formulated milk or breastfed up to the age of ten years. A comparison of the extensive hydrolysate of milk proteins and standard prepared milk found that the children who took the hydrolysate grew slower (weight for length z-score) between 2.5 month and 7.5 months.

Pediatricians, who care for children from birth, play an important role in preventive and should intervene early to ensure active family participation in dietary and lifestyle counseling.

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