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Fluoride intake and nutrition of relevance to dental health in children in Gaza Strip-Palestine

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Children in Gaza Strip (GS) suffer from a high prevalence of dental fluorosis and dental caries. This study aimed to determine the total fluoride intake (TFI) and Urinary fluoride Excretion (UFE) in 4-year-old children exposed to low, moderate or high fluoride in home tap water (<0. 7, 0. 7-1. 2, >1. 2 ppm respectively) in GS; to determine energy and nutrient intakes; and to make recommendations for preventive studies.

A 3-day food diary, tap water, drinks, foods, toothbrushing expectorate and 24-hour urine samples were collected from 216 children receiving low (n=81), moderate (n=72) or high (n=63) fluoride in tap water. Fluoride concentration of samples was analyzed. A Food Tables Access Database was used to estimate energy and nutrients intake. Statistical analyses used ANOVA, Tukey's test and Pearson's Correlation. The mean TFI (±SD) in groups of low, moderate and high fluoride concentration in tap water was 0. 02, 0. 04 and 0. 05 mg/kg body-weight/day respectively (P<0. 0001). Foods made the largest contribution to TFI (63. 85%). A negative relationship (P<0. 0001) was found between Fractional UFE and intakes of protein, fat, fibre, carbohydrate and calcium. Children had low energy intake (5. 17(±1. 41) MJ/day). Non-Milk-Extrinsic (NME) sugars contribution to total energy was 12. 2% (+5. 8) and above the WHO recommended level (≤10% energy).

Foods were the primary source of fluoride intake. Nutrients retarded fluoride absorption. High NME sugars intake increase the risk of dental caries. Thus preventive studies of dental fluorosis and dental caries should consider all fluoride sources, and encourage a balanced diet aiming to reduce NME sugars intake.

Biography

Lamis abuhaloob obtained PhD in Dental Public Health from Newcastle University in the United Kingdom. She is Head of Oral and Dental School Health in Ministry of Health in Palestine. She has published and presented several papers in national and international journals and conferences of dentistry.

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