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Interaction between lipid profile and urine iodine in pre-diabetes & diabetes among school-age children (5–9 years) in India

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ABSTRACT (upto 300 words)

Aim: Diabetes is a major public health problem in India. The interaction effect between biomarkers in pre-diabetes and diabetes among school-age children (5-9 years) is unknown. This study aims to determine the interaction between lipid profile and urine iodine in pre-diabetes and diabetes among school-age children in India.

Methods: The data of school-age children (5–9 years) (n=38,355) was extracted from the Comprehensive National Nutritional Survey (CNNS) and cleaned for analysis. Glycosylated haemoglobin (HbA1c) and FBG (fasting blood glucose) values were used to classify pre-diabetes and diabetes. Multiple logistic regression analyses were used to estimate the interaction between lipid profile and urine iodine. The interaction analysis was performed for the categories based on HbA1c, FBG and combined estimates of both.

Results: Within FBG categories, the highest probability (52.4%, p=0.003) for pre-diabetes was estimated among high LDL and iodine-deficient children. For diabetes, the highest probability (3.2%, p=0.016) was among high LDL and normal iodine children. Among HbA1c estimates, the highest probability (11.9%, p=<0.005) for pre-diabetes was in children with normal triglyceride

and iodine deficiency. The highest probability (0.4%, p=0.826) for diabetes was among high LDL and iodine-deficient children. Among combined estimates, the highest probability was similar to the FBG results. All the interaction effects were adjusted for age, gender, mother's education, waist circumference and wealth index.

Conclusion: The expected probability for pre-diabetes was highest among high LDL and iodine deficient children, whereas the probability for diabetes was highest among high LDL and normal iodine children. The study confirms the interaction between lipid profile and urine iodine in children with diabetes. This requires further confirmation through multiple studies.

BIOGRAPHY (upto 200 words)

Savitesh has a Master's and M.Phil. degree in Biological Anthropology from the University of Delhi, India. He works on precision nutrition in type 2 diabetes at the Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India. The work involves genetic analysis and dietary intervention planning using a machine-learning approach.

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