Anthropometric characteristics, dietary patterns and the risk of Glucose Intolerance among rural populations in the Lake Victoria Basin of Kenya

ABSTRACT

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Introduction: The primary cause of increase in the prevalence of glucose intolerance in Africa is the lifestyle changes commonly known as the "nutrition transition".

Objective: To determine the effects of dietary intake and anthropometric characteristics on the glucose intolerance of two rural communities of the Lake Victoria Basin in Kenya.

Methods: Data from 304 subjects (8/24, M/F with glucose intolerance; 126/146, M/F control subjects) were analyzed in a case control study. Their height, weight, hip circumference (HC), Waist Circumference (WC) Middle Upper Arm Circumference (MUAC), calf circumference (CC) and % Body Fat (BF) were measured. Diet intake was assessed using 24 hour recall and the food frequency questionnaire. Glucose intolerance (IGT + Diabetes) was assessed using the fasting blood glucose level followed by the OGTT test using 75grams of glucose.

Results: The BMI (p=0.003), %BF (p=0.002), and HC (p=0.004), differed significantly among glucose intolerant and the controls. Glucose intolerant (GI) subjects were found to have a significantly (p=0.017) lower percentage of protein (12%) intake in their diets than the control (14%). The intake of Poly unsaturated Fatty Acids (PUFA) also differed significantly (p=0.042) with the glucose intolerant group consuming less than the controls. There was significant differences (p=0.015) in the vegetable intake among the two groups with the controls having reported increased intake of the vegetables.

Conclusions: Increasing BMI, % BF and HC independent of age and sex are risk factors for glucose intolerance. A high overall protein percent intake in the diet and an elevated PUFA intake have desirable effects in the management of blood sugar metabolism. Increased intake of vegetables was found to have protective effects against glucose intolerance.

Recommendations: Individuals are strongly advised to have non-elevated BMI, %BF and HC for purposes of managing the body tolerance to glucose. Increasing the protein percentage, PUFA and vegetable intake in the diet is recommended for all age groups and in both males and females.

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