Sugar alters the level of serum insulin and plasma glucose and the serum cortisol:DHEAS ratio in female migraine sufferers.

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Abstract

Early work has highlighted that a large percentage of migraineurs may have an altered glucidic metabolism due to carbohydrate-induced hyperinsulinism. The aim of this study was to assess the effect of sucrose on biomarkers of energy metabolism and utilization in migraineous females. A total of 16 participants (8 = Migraine, 8 = Non-migraine) at the mid-point of their menstrual cycle underwent a 15-h fast prior to ingesting 75 g sucrose dissolved in 175 g water. Blood sampling for the assessment of serum insulin, serum cortisol and serum dehydroepiandrosterone sulfate (DHEAS) and plasma glucose was conducted upon arrival at 09:00 h and then at regular 15-min intervals across a 150-min experimental period. The results showed a significant alteration in serum insulin and plasma glucose following sucrose ingestion in the migraine and non-migraine groups. In addition, significant group differences were observed in the level of serum insulin, serum DHEAS, and the cortisol:DHEAS ratio with migraine participants on average recording a higher sucrose-induced serum insulin level and lower DHEAS level and cortisol:DHEAS ratio when group data was compared. It was concluded that while sucrose consumption may potentiate serum insulin in migraineurs this does not result in the development of sucrose-induced hypoglycemia in migraine or non-migraine participants.

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PMID: 20851729 [PubMed - indexed for MEDLINE]