

Hydroxycitrate (HCA) and intestinal glucose absorption

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Several studies have shown that hydroxycitric acid (HCA) reduces food intake in rodents, although the mechanism is still unknown. In this study we focus on a possible inhibitory effect of HCA on glucose absorption, which may explain the food intake reducing effect. In rats, an intragastric (ig) glucose load was infused for 5 min, two hours after ig administration of either Regulator HCA (310 mg/kg) or vehicle. Before and after infusion, blood samples were withdrawn using a permanent jugular vein catheter. The glucose response to an ig load of glucose (9 ml, 0.123 g/ml ig) was strongly attenuated in the HCA treated group. In the consecutive experiment, glucose was given intraduodenally (id). This still resulted in an attenuated blood glucose response, excluding delayed gastric emptying as the underlying mechanism. We used Steele's isotope dilution method to assess glucose absorption as a possible explanation. Indeed, the rate of appearance of exogenous glucose was much lower in HCA treated rats compared to control. The area under the curve of glucose did not differ between the groups, suggesting that the glucose absorption is delayed but not diminished after treatment with HCA. Overall, we can conclude that HCA delays the absorption of glucose.

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