Reply to letter to the editor: the tolerance of erythritol and xylitol based on effective dose methodologies

Bettina K. Wölnerhanssen,1,2 Anne Christin Meyer Gerspach,2 and Christoph Beglinger2

1University Hospital Basel, Department of Biomedicine, Basel, Switzerland; and 2Clinical Research, St. Claraspital, Basel Switzerland

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to the editor: To Drs. Bonnema and colleagues, thank you for your comments on our recent article in AJP-Endocrinology and Metabolism (4). Indeed, for subjects not used to these polyols, 50 g of xylitol and 75 g of erythritol as a single bolus given within 2 min seems rather high. From a nutritional point of view the applied doses makes sense, at least in adapted subjects. This would then, for instance, correspond to a 50-cl bottle of Coke (with ~50 g of sucrose).

Various tolerance studies with oral intake of xylitol and erythritol have been performed in the past and come to the conclusion that single or repeated intakes of ≤50–75 g of erythritol and 20–50 g of xylitol should be acceptable. However, studies vary in the type of administration (single bolus, several doses spread out over the day, dose dissolved in water or part of a solid meal, acute effects or chronic effects with an adaption period), and a clear threshold cannot be found. The Salford consensus stated in 2001 that because of wide variations in individual gastrointestinal responses, threshold levels for the consumption of low-digestible carbohydrates such as polyols obtained under experimental conditions have limited value for the public (1). We agree. Our study was not designed to examine any threshold of tolerance. The focus of the publication lies on the observation that the two polyols are able to stimulate satiation peptides and slow down gastric emptying similarly to regular sugar (sucrose). The doses used in our trial were able to stimulate CCK and GLP-1 release; we anticipate that this is true for lower doses as well, most likely in a dose-dependent manner. Most studies on satiation peptides are carried out with a glucose dose of 50–75 g. In a recent publication, we showed that even low doses (10 and 25 g) of oral glucose are able to stimulate satiation peptide release (3). Whether this is also true for xylitol and erythritol remains to be proven.

The article did not intend to describe industrial production of xylitol and erythritol in detail. Bonnema et al. (2) are right that xylitol is not directly extracted from birch trees. Production of xylitol is based on extraction of xylans from hardwood (birch among others), corn cobs, or other xylan-rich plant material, which is then further processed to xylose and finally to xylitol. Meanwhile, erythritol is gained through yeast fermentation of glucose.

disclosures

No conflicts of interest, financial or otherwise, are declared by the authors.

author contributions

B.K.W., A.C.M.G., and C.B. drafted manuscript; B.W., A.C.M.G., and C.B. edited and revised manuscript; B.K.W. approved final version of manuscript.

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