

Hyponatremia and Chewing Gum in a Patient with Anorexia Nervosa

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Case Report

This report describes a 23-year-old woman who was diagnosed with anorexia nervosa binge-eating/purging subtype since she was 17. In a routine blood test, we found a sodium level of 123 meq/L. At that time she weighed 43 kg (body mass index 17.06 kg/m²).

However, the patient's initial physical and the neurologic exam were normal. Several consecutive laboratory analyses were made and the sodium level remained low. Further laboratory investigations (including cortisol, thyroid hormones, potassium, creatinine, glucose and amylase) were normal. The serum osmolality was low (252 mOsm/kg), Syndrome of inappropriate ADH secretion was ruled out. The urine osmolality fluctuated between (110 and 607 meq/L), and sodium excretion ranged between 12 and 71 meq/L.

With a thorough medical history, we found she used large amounts of sugar-free gum, up to 150 pieces per day, as purging method. She did not use other purging methods (as diuretics, laxatives or vomiting) or excessive water intake.

She did not take antidepressants or other drugs or pills. Among the components of the chewing-gum she consumed we found different poly-alcohols with osmotic properties (sorbitol, mannitol and xylitol).

The treatment consisted in restriction of chewing gum and the administration of 2 g of NaCl by meal. Subsequently sodium levels recovered without other complications.

The impact of artificially sweetened products on appetite and weight regulation in individuals with eating disorders has been considered previously, they frequently consume artificially sweetened foods, consistent with their belief that use of these energy-sparse products facilitates weight loss, a purging technique, a way to control binge-eating episodes, or as a means to limit hunger [1-4]. Mannitol,

among other polyols included in the chewing gum composition, is used as a cover to prevent the gum adheres to wrapper. It has diuretic and laxative effect at high doses (more than 20 g per day). As sorbitol is poorly absorbed by the small intestine it acts as an osmotic agent. Higher doses (20-50 g) may cause osmotic diarrhea [1,2].

On the other hand, Hyponatremia is one of the most common electrolyte disturbances in these patients [5]. Dilutional hyponatremia combined with water intoxication can cause fatal cerebral edema and lead to death as extrapontine and pontine myelinolysis related with rapid hyponatremia correction [6].

The objective of this report is to make clinicians aware of the metabolic effects of chewing gum abuse. It is important to consider this option when a disturbance in hydroelectrolytic balance is found in a patient with an eating disorder.

A signed release from the patient authorizing publication has been obtained.

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