

# Seizures and hyponatremia after excessive intake of diet coke

Luc J.M. Mortelmans<sup>a</sup>, Michel Van Loo<sup>a</sup>, Harald G. De Cauwer<sup>b</sup> and Karen Merlevede<sup>b</sup>

We describe a case of epileptic seizures after a massive intake of diet coke. Apart from the hyponatremia due to water intoxication the convulsions can be potentiated by the high dose of caffeine and aspartame from the diet coke. To our knowledge this is the first report of seizures due to excessive diet coke intake. *European Journal of Emergency Medicine* 15:51 © 2008 Wolters Kluwer Health | Lippincott Williams & Wilkins.

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## Case

The prehospital medical team was sent to a 54-year-old female who suffered from a status epilepticus. The seizures were preceded by agitation. She had no history of epileptic seizures but was well known for depression and ethylism. No arguments for alcohol withdrawal seizures were observed, but her husband mentioned that she drunk over 9l of diet coke that day. The seizures stopped after the administration of 10 mg of diazepam intravenously. The woman was admitted with the tentative diagnosis of seizures secondary to a metabolic disorder. Laboratory analysis revealed a marked hyponatremia of 109 mmol/l with an osmolality of 232 mOsm/l, the renal function was normal. Postconvulsive rhabdomyolysis was diagnosed (creatinine kinase of 2437 U/l). She recovered well after intravenous correction of the hyponatremia, forced diuresis and delirium prevention. She was under psychiatric control and remained seizure free.

## Discussion

Polydipsia is a well-known phenomenon in psychiatric patients, often leading to hyponatremia [1–3]. It is also known under the term of water intoxication. The exact underlying pathophysiology is unclear and several contributing factors as hypothalamic defect and syndrome of inappropriate secretion of antidiuretic hormone have been mentioned [2]. If blood sodium drops beneath 120 mmol/l there is a clear risk for seizures [3]. This is also described in neonates [4,5].

The fact that our patient had an excessive intake of diet coke probably potentiated the epileptogenic effect of the hyponatremia. Caffeine, and thus cola, can exacerbate seizures [6], especially when taken in high doses. Aspartame, a sweetener used in diet coke, is known for its epileptogenic potential [7–8]. In Canada, the

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Departments of <sup>a</sup>Emergency Medicine and <sup>b</sup>Neurology, Klina General Hospital, Brasschaat, Belgium

Correspondence to Luc J.M. Mortelmans, MD, Department of Emergency Medicine, AZ KLINA, Augustijnslei 100, B2930 Brasschaat, Belgium  
Tel: +32 3 650 50 45; fax: +32 3 650 50 82; e-mail: luc.mortelmans@klina.be

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recommended daily intake of aspartame is 40 mg/kg [8]. As 1l of diet coke contains 550 mg of aspartame our patient took approximately 5000 mg that day, grossly exceeding this recommendation. Rhabdomyolysis can, besides from the seizures, be induced by the polydipsic hyponatremia [9,10] as well as by the caffeine overdose [11]; the combination of both factors can even induce unusually severe rhabdomyolysis [12].

To our knowledge this is the first case of hyponatremic seizures due to excessive diet coke consumption. Patients with a medical history of epileptic seizures should drink diet coke with caution.

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