



## Case Report

# Absence seizure associated with coloprep consumption in colonoscopy



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### ABSTRACT

Coloprep is a bowel preparatory solution given before endoscopic procedures to get a unobscured internal vision. It has among its constituents' sodium sulphate, potassium sulphate and magnesium sulphate which produce an osmotic effect in the bowel. However, the use of such agents in hyponatremic and patients predisposed to seizures can have adverse ramifications. The current case outlines manifestation of absence seizure in a 52-year-old male patient who was administered Coloprep for colonoscopy. There was absence of other predisposing factors and the symptoms were ameliorated using timely identification and rectification of the underlying derangements.

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### Convulsão de ausência com o uso de Coloprep em colonoscopia

#### RESUMO

Coloprep é uma solução preparatória intestinal administrada antes de procedimentos endoscópicos, com o objetivo de se ter uma visão interna não obscurecida. Entre os constituintes de Coloprep, observa-se sulfato de sódio, sulfato de potássio e sulfato de magnésio, que provocam efeito osmótico no intestino. Mas o uso de tais agentes em pacientes hiponatremicos e com predisposição para convulsões pode ter ramificações adversas. O caso em tela delinea uma manifestação de convulsão de ausência em paciente do gênero masculino com 52 anos e que recebeu Coloprep para colonoscopia. Não havia outros fatores predisponentes e os sintomas melhoraram graças à oportuna identificação e correção dos transtornos subjacentes.

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#### Palavras-chave:

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## Introduction

Absence seizure also known as petit mal seizure belongs to the group of non-convulsive status epilepticus and is characterized in EEG by bilateral synchronized spikes with wave complex bursts. Its hallmark features include sudden-onset impairment of consciousness, blank stare, upward gaze, frozen movements and abrupt speech draught.<sup>1</sup> Unlike other seizures, it does not have post-dromal disorientation and lethargy. Although hyponatremia is a rare causative factor of absence seizure, it is not unheard of and can be precipitated due to excess sodium loss or as a result of polydipsia. The therapy mainly involves administration of normal saline solution to correct the imbalance and since initially the causation is unknown, a benzodiazepine agent can be used to subdue the episodes before moving towards further work-up on the issue.

Coloprep<sup>TM</sup> is a bowel preparatory solution used prior to endoscopic and surgical procedures which necessitate a clean bowel. It is composed of sodium sulphate 17.5 g, potassium sulphate 1.6 g and magnesium sulphate 3.13 g/177 mL and produces watery bowel stools through its osmotic effect. The modality, although extremely common is not without risks and has serious potential to induce electrolyte abnormalities which may further propagate into seizures.

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## Case history

A 52-year-old male patient presented to the internal medicine department of a super-speciality hospital in Kerala with complaints of anorexia, tiredness and constipation since 3 weeks. The patient was conscious and alert with the vitals normal except for mild elevations in blood pressure (140/85 mm Hg) and temperature (99°F). The patient had been on anti-hypertensive therapy with Lisinopril 5 mg since 3 years and prior history of interstitial lung disease as well as gall stones. The patient expressed concerns over loss of 5 kg in the past 2 weeks and after examination, the physician ordered liver function test (LFT), blood routine examination, differential leukocyte count and serum electrolyte concentrations. Blood and electrolyte investigations divulged elevations in total leukocyte (15 000 cells/mm<sup>3</sup>), differential lymphocyte (39%) and serum potassium (5.4 mmol/L). The LFT results revealed elevations in ALP (223 IU/L) and gamma-glutamyl transferase (149 U/L) which suggested a possibility of cholestasis and the patient was admitted for further evaluation. Therapy was started with paracetamol, multivitamin & mineral supplement and calcium gluconate. The physician after meticulous contemplation, decided to perform an oesophago-gastro duodenoscopy (OGD) coupled with magnetic resonance cholangiopancreatography (MRCP) and colonoscopy up to ileum to rule out possibilities of malignancies and explore for possible gall stone obstructions. The patient cleared the cardiac, pulmonology and neurology departments risk evaluations and got a green flag for endoscopic examination. As preparation for the procedure, patient was advised to intake 2 bottles of Coloprep<sup>TM</sup> composed of sodium sulphate 17.5 g, potassium sulphate 1.6 g and magnesium sulphate 3.13 g/177 mL. The advice was to intake 1st bottle along with 1 L of water on the

night before and the next bottle, on the morning of the procedure day. However, during the period of intake of the first bottles, the patient contracted brief episodes of loss of consciousness and orientation characterized by unresponsiveness despite his eyes staring wide open. There were also symptoms of bradykinesia upon regaining consciousness, decrease in speech and confusion. The patient was immediately shifted to the intensive care unit and was ordered for serum electrolyte levels and electroencephalogram. The EEG showed revealed bilateral spike and slow wave complexes whereas, the serum sodium level was found to be on the lower side with value of 128 mmol/L. The patient was stable after shifting to ICU where he was administered 1500 mL normal saline infusion and 5 mg diazepam. The causality assessment was done using Naranjo algorithm with a resulting score of 5 indicating towards a probable association between the drug and reaction. After stabilization of the patient, colonoscopy was performed without further colorectal evacuation and MRCP revealed gall stones for which further therapy was initiated.

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## Discussion

The signs of reaction indicated towards symptoms of absence seizure and was further cemented by the EEG reading. The patient was evaluated to have no other risk factors or recurrence of seizure episodes indicating a strong link between the drug and reaction. Although very few case reports have emerged regarding bowel cleansing medications induced seizure episodes, they all concur on the mechanism through which seizures are induced and the current case is not dissimilar.<sup>2,3</sup> The serum electrolyte disturbance with potassium was evident on the initial day which was rectified using calcium gluconate; however, the sodium levels which were normal on the first day was found to have declined to a hyponatremic level in the post-seizure phase. However, there was no electrolyte monitoring done on the day of administration of Coloprep<sup>TM</sup> which obscures the fact whether hyponatremia was already present and potentiated or whether there was an exclusive induction. Electrolyte disturbances has been clearly stated as a contraindication for the use of combination of sodium sulphate, potassium sulphate and magnesium sulphate in lights of its potential for precipitating seizure episodes.<sup>4,5</sup>

Although international league against epilepsy (ILAE) commission on epidemiology recognized lack comprehensive data on the causal effect relationships between metabolic derangements and seizure, it has laid down arbitrary limits for disturbances such as hyponatremia and risk of seizure.<sup>6</sup> Serum sodium level below 125 mmol/L is regarded as a potential risk factor for development of seizure in patients, especially those with underlying seizure risk. When there is hyponatremia, a cerebral protective mechanism sets into motion through active extrusion of electrolytes and organic osmolytes. However, when this protective mechanism is overwhelmed due to other predisposing factors such as hypoxia, it can culminate in cerebral edema which manifests as refractory seizures.<sup>7</sup>

The effective management strategy in such cases involves immediate shifting of the patient to ICU, where a more

individualized monitoring can be provided round the clock. Initially, a differential diagnosis should be considered and the treatment can be provided with an aim to establish patient stability. Different reasons should be considered such as chance of hypotensive syncope and other reasons for sodium depletion in the patient. Causality assessment can be utilized as an integral part of the root cause analysis to provide a more comprehensive interpretation. Normal saline infusion, either 1000 to 1500 mL will usually be sufficient to replenish the electrolyte abnormalities in these patients and prevent further deterioration of the patient status. The patient can be immediately given a benzodiazepine agent such as diazepam at low dose to subdue the seizure episode and prevent further adversities.

Each patient who is being given such bowel cleansing solutions must be carefully analyzed for contraindications such as electrolyte abnormalities and other potential predisposing factors for seizure before initiation of the regimen.

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### Conflicts of interest

The authors declare no conflicts of interest.

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