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Case report

New-onset hemodialysis-related headache presenting as migraine aura

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ABSTRACT

Hemodialysis headache (HDH) is an infrequent new-onset symptom, occurring mainly in old uremic patients. Type of pain is nonspecific, occurs during hemodialysis treatment, assuming features similar to tension-type headache and representing a problem, also as regards the therapy to be taken. International Headache Society (IHS) has placed this form of headache among the headaches disorders of homeostasis. We found a case of new-onset HDH in old uremic man, presenting with migraine aura features. A similar case has not been reported in literature, placing us some questions: why and how does this happen? What are the mechanisms involved? Role of trigeminal-vascular system and cortical spreading depression as regards the aura could be considered, through the activation of neuroinflammatory events, lastly causing migraine aura. Moreover, the administration of flunarizine strongly improved migraine symptoms in our patient, as happens in migraine syndromes. Definitely, this case leads us to think that some mechanisms involved in headaches will need to be further clarified.

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1. Introduction

Headache remains still a problem in elderly, though infrequent, affecting about 10% of women and 5% of men older than 70 years [1]. New-onset headaches or changes in headache pattern in old patients become index of suspicion for organic diseases. Hemodialysis headache (HDH) has been studied for many times, but its pathophysiology is not well known [2]. Several risk factors are reported as high arterial blood pressure, high blood urea level, low serum magnesium level, hyperphosphatemia, high blood sodium level. According to International Headache Society (IHS) 3rd edition, 10–7, HDH seems related to homeostasis disorders, developing in the course of dialytic treatment and extending up to 72 h. Furthermore, HDH has been reported bilateral, nonpulsating, without other symptoms, appearing mostly during hemodialytic treatment. In this study we describe a case of new-onset headache in uremic old man, presenting with typical characteristics of migraine aura, occurring during and outside from the hemodialysis treatment and with absence of risk factors for homeostasis disorders headache, except for a slight increase in blood pressure.

2. Case report

We report a case of 78-year old man undergoing hemodialysis from a year earlier with new-onset headache occurring during and outside dialysis. Pain had no features evocative of HDH (extended to the entire head, nonpulsatile, without associated symptoms, related to dialysis session), but more similar to migraine aura, mainly visual, nausea, phono-photophobia, presenting even apart from dialytic treatment. Frequency was about 3 attacks in a month. No clinical history of migraine was reported. Neurological examination was normal as cerebral TC-MRI. Laboratory data showed the following results: serum creatinine level 7 mg/dl, blood urea level 146 mg/dl, serum calcium level 8.1 mg/dl, serum phosphorus level 7 mg/dl, serum parathormone level 315 pg/ml, hemoglobine level 11 mg/dl. Slight changes of blood pressure with increase were reported. Lastly, arterial blood gas analysis showed normal values. Migraine-like headache was treated successfully with flunarizine 10 mg daily oral dose. Now the patient shows a significant reduction of migraine attacks.

3. Discussion

Hemodialysis may induce headache in a limited range of uremic patients. Pathophysiology is unknown although electrolyte disorders are invoked [3]. Clinical features of HDH are variable, regarding the location, on a particular region of the head as around the entire head, intensity ranging from moderate to severe, duration, from a few hours to days,

the temporal relationship with hemodialysis treatment. HDH also occurs in association with hypotension and dialysis disequilibrium syndrome [4]. Currently, HDH is classified as a disorder of homeostasis, according to IHS guidelines [5]. Our study offers some considerations: HD patient shows atypical head pain presenting as migraine aura instead of HDH features, there is no clear relationship between the beginning or the end of hemodialysis and headache, reported high blood pressure, not hypotension good response to flunarizine, as happens in migraine. A similar case has not been so far described in the literature: which hypothesis to suggest? Activation of the trigeminal-vascular system, caused by metabolic disorders, present in uremic disease, considered one of the events underlying the migraine syndrome, responsible for the pain through the release of algogenic peptides as cytokines substance P, CGRP and others, with the involvement of the cortical spreading depression mechanism concerning the aura? The effectiveness of the response to flunarizine, a calcium antagonist used in the prophylaxis of migraine further would confirm this hypothesis. In other words, a diagnostic hypothesis could be advanced, for which hydroelectrolytic alterations, induced by hemodialysis, could trigger inflammatory events, causing the late onset of a migraine syndrome.

This case induces us to believe that the mechanisms involved in migraine are still to be explored, as well as the possible triggers, opening the way for further suggestions.

Conflict of interest

None declared.

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