HEMODIALYSIS HEADACHE: AN ITALIAN STUDY

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ABSTRACT

Objective. The aim of this study was to establish the prevalence of hemodialysis headache in a population of Calabrian subjects, in Italy.

Methods. We observed a sample of hemodialysis subjects, studied at the University Hospital of Catanzaro and the Hospital of Melito PS, Reggio Calabria. The patients were investigated for the search for hemodialysis headache. The inclusion criteria of the subjects in the study were respected, such as the characteristics of the headache and the close relationship with dialysis.

Results. The results showed a percentage of hemodialysis headache around 5% of cases. The percentage we found was very low compared with some literature data revealing percentages up to 70% of cases.

Conclusions. This discrepancy of data is unclear, the results we obtained are in line with few cases of literature. However, our results pose important reflections on the actual prevalence of hemodialysis headache.

Keywords: headache, hemodialysis headache, homoeostasis disorders

INTRODUCTION

The International Classification of Headache Disorders, 3rd edition (ICHD-3) has included hemodialysis headache (HDH) among headaches from homoeostasis disorders. It doesn’t have specific features, occurs during hemodialysis and can last up to 72 hours after treatment. Clinically, the headache may affect a region of the skull or spread throughout the entire skull. The pain is described as gravitative, constrictive, accompanied by phono-photophobia, and the intensity can sometimes be severe.

The pathophysiology of HDH is not known, but some triggering factors have been identified, such as changes in blood pressure, serum sodium and magnesium levels during hemodialysis (1), and stress. Treatment depends on pain tolerance and non-steroidal anti-inflammatory drugs (NSAIDS) are used (2). The prevalence of HDH varies according to the studies reported in the literature. The data are not uniform with different percentages of prevalence reported. The diagnostic criteria must be respected, in order to have a precise evaluation of the pathology. We present a series of cases obtained from a sample of hemodialysis patients, describing the characteristics of the headaches by comparing them with the literature data.

MATERIALS AND METHODS

The sample consisted of 100 patients affected by uremia undergoing tri-weekly hemodialysis. The patients were observed at the Department of Nephrology and Dialysis of the University Hospital of Catanzaro, Italy and that of the Hospital of Melito PS, in the province of Reggio Calabria, Italy. Age ranged from 40 to 82 years, 70 males and 30 females. The aim was to find patients suffering from hemodialysis headache. We prepared a form containing the criteria for the inclusion of patients presenting with hemodialysis headache, type, duration...
of pain, close correlation with the timing of dialysis, absence of any pre-existing headache. No correlation of HDH with a simultaneous increase in blood pressure during dialysis has been found. The parameters of renal function included urea, creatinine, calcium, phosphorus, parathyroid hormone, the results of which are shown in table 1. Magnesium blood dosage showed in 3 patients, slightly lower values: 1.39, 1.38, 1.36 mEq/L (normal values: 1.41-1.85 mEq/L). The administered forms gave the following results: of the 100 patients, only 5 had hemodialysis headache, 3 males, 2 females, aged between 47 and 68 years, and regarding the pain intensity, we found severe pain in 2 patients, assessed with the Visual Analogue Scale (VAS), which showed a score of 8 for both. These patients were subjected to hemodialysis for about 10 years. The 3 remaining patients showed a VAS score of 5-6. Only patients with a VAS score of 8 had pain medications.

**TABLE 1. Hemodialysis renal parameters**

| Sex | Age | VAS | Urea | Creatinine | Calcium | Phosphorus | Parathormone |
|-----|-----|-----|------|------------|---------|------------|-------------|
| M   | 84  | 8   | 167  | 9.1        | 10,4    | 5.4        | 1036        |
| F   | 81  | 5   | 146  | 9.4        | 7.6     | 7.2        | 156         |
| F   | 58  | 8   | 178  | 10.9       | 7.7     | 5.6        | 1049.7      |
| M   | 70  | 5   | 175  | 10.2       | 8.1     | 5.8        | 1037        |
| M   | 64  | 6   | 176  | 9.1        | 7.7     | 7.3        | 160         |

**DISCUSSION**

Hemodialysis headache (HDH) belongs to the group of headaches from homoeostasis disorders. It is a headache present in hemodialysis patients, being closely linked with hemodialysis session to the subject, and which lasts up to 72 hours after the session has ended. So far studies that have been conducted have shown a variability concerning the prevalence in the tested samples. Antoniazzi et al, 2003, found 87 patients receiving hemodialysis in a sample out of 123 (70.7%) complained of headache, such as migraine and tension-type headache. Fifty patients (57.5%) experienced migraine and tension type headache (3).

Prior to beginning dialysis, 48% of these 87 patients had a migraine, 19% had an episodic tension-type headache, 8% had both. Thirty-four of these were classified as dialysis headache. In addition, arterial hypertension (38%), arterial hypoten-
Hemodialysis headache is a particular form of secondary headache, linked to session dialysis. We do not have much data in the literature, and the studies we have described show various cases with different results. Our sample showed a 5% incidence in HDH, which is a low percentage compared to other literature data but we have observed a strict criteria of selection, not inserting other forms of headache in the cases of HDH. Risk factors are invoked as increased blood pressure during dialysis (15). Another factor that may be considered is decrease in magnesium, after hemodialysis (16). Increased levels of magnesium are commonly associated with chronic kidney failure while magnesium deficiency is present in case of increased renal loss as in case of hypoparathyroidism. Hypomagnesemia, although mild, found in 3 of the 5 subjects HDH appears to be in agreement with the literature data, according to which it would represent a risk factor for this type of headache.

CONCLUSIONS

In this study we have described our experience concerning hemodialysis headache, seeking the prevalence in a sample of uremic subjects, undergoing tri-weekly hemodialysis and obtaining a percentage of 5%, a result that, compared with other cases, shows that this type of headache is not frequent in the population we studied.

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