▪ Headache Medicine 2022, Supplement ▪ p-ISSN 2178-7468, e-ISSN 2763-6178

Headache Medicine

▪ DOI: 10.48208/HeadacheMed.2022.Supplement.2

Dialysis-related headache: prevalence and clinical features in patients on hemodialysis and after kidney transplantation

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Introduction

Headache is a common symptom among patients on hemodialysis, occurring in up to 70%. Dialysis headache is defined by the International Classification of Headache Disorders (ICHD-3) as a headache with no specific characteristics, occurring during and caused by hemodialysis, and which resolves spontaneously within 72 hours after the session has ended. There is no consensus on its pathophysiology or triggering factors.

Objective

To evaluate the prevalence, clinical features and factors associated with dialysis headache in patients with chronic kidney disease on renal replacement therapy.

Methods

Cross-sectional observational study with a quantitative approach. Participants were divided into two groups: (1) 25 patients on hemodialysis and (2) 25 patients on early post kidney transplantation. All participants were interviewed with a structured questionnaire, the Hospital Anxiety and Depression Scale, and the Epworth Sleepiness Scale. Blood pressure, weight, urea, glucose and electrolytes were evaluated before and after one hemodialysis session. Control groups were classified within the headache-free patients in each group. Numerical variables were expressed as mean and standard deviation and evaluated using Student's t test (two-tailed) or Mann-Whitney U test. Categorical variables were expressed as percentage and evaluated using Pearson's chi- squared test. The p value was considered statistically significant when lower than 0.05.

Results

In group (1), 8 patients (32%) were diagnosed with dialysis headache, predominantly pulsatile (n=6, 75%), accompanied by photophobia (n=6, 75%), phonophobia (n=4, 50%) and nausea or vomiting (n=6, 75%), with a mean pain score of 7.75 ± 1.58. Individuals with headache had higher scores for anxiety (7.00 ± 3.93 vs. 3.82 ± 3.23, p=0.03) and sleepiness (9.13 ± 3.94 vs. 4.76 ± 3,85, p=0.01). Dialysis headache was associated with lower pre-dialysis serum calcium (p=0.01), higher pre-dialysis systolic (p=0.02) and diastolic (p=0.02 blood pressure. There was no correlation between headache and variations in serum urea levels. In group (2), 5 patients (20%) were diagnosed with dialysis headache, predominantly pulsatile (n=4, 80%), accompanied by nausea or vomiting (n=4, 80%), aggravated by routine physical activity (n=3, 60%), with a mean pain score of 8 ± 1.41. Individuals with headache had higher sleepiness scores (9.20 ± 4.32 vs. 4.80 ± 4.51, p=0.029) and younger age (38.93 ± 14.43 vs.54.02 ± 8.31, p=0.03).

Conclusion

Headache is common among patients on hemodialysis, it has migraine-like features, and it is associated with increased anxiety, increased sleepiness, lower pre-dialysis calcium values, and higher pre-dialysis blood pressure levels. It is possible that dialysis headache may be prevented by treating anxiety and excessive sleepiness, as well as screening for high blood pressure and serum calcium levels before the hemodialysis session. Knowing the factors associated with the development of dialysis headache allows us to evaluate possible preventive and therapeutic strategies for this headache in order to improve the quality of life of patients on hemodialysis.

Keywords: Headache, Hemodialysis, Chronic kidney disease, Anxiety, Sleepiness, Blood Pressure.