

# Cefaleia Dialítica Associada à Cefaleia por Privação de Cafeína em Pacientes Submetidos à Hemodiálise

## Dialysis Headache Associated with Caffeine-Withdrawal Headache in Patients Undergoing Hemodialysis

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### ABSTRACT

Headaches are particularly relevant as a complication of hemodialysis, given that this condition increases the discomfort felt by patients undergoing this therapy. The objective of the present study was to evaluate the prevalence of headache in patients undergoing hemodialysis sessions, particularly considering dialysis headaches due to caffeine-withdrawal. This was a cross-sectional, observational, quantitative and qualitative study with questionnaires and interviews. The questionnaire addressed biopsychosocial aspects, clinical aspects and criteria for the classification of headaches according to the International Headache Society. A hundred and sixty patients with stage-V chronic kidney disease responded to the questionnaire during hemodialysis sessions. Headache prevalence was 90% and over the period studied 53.1% of patients presented the symptom. Among these patients with headaches, over half (55.3%) presented criteria for concomitant caffeine-withdrawal headaches and dialysis headaches. The beginning of headaches varied between one month and more than five years, with most occurring for more than five years. Frequency varied from sporadic crises to more than one crisis a day, though more than one crisis a day predominated. The interval between crises was of a few days, with mean duration of less than one hour, which ceased with the use of self-medicated analgesics, with no worsening factor. This condition is a challenge for neurologists and headache experts. More studies are needed to decrease this prevalence, to decrease the abusive use of analgesics and improve the quality of life of these patients.

**Keywords:** Headache; Renal Dialysis; Headache Disorders.

### RESUMO

A cefaleia como complicação da hemodiálise merece um lugar de destaque, uma vez que aumenta ainda mais o incômodo sofrido pelo paciente submetido a essa terapia. O objetivo deste trabalho é estudar a prevalência de cefaleia em pacientes submetidos a sessões de hemodiálise, com ênfase na cefaleia dialítica e na cefaleia por privação de cafeína. Este foi um estudo transversal, observacional, quantitativo e qualitativo utilizando questionários e entrevistas. O questionário abordou aspectos biopsicossociais, aspectos clínicos e critérios para classificação da cefaleia de acordo com a Sociedade Internacional de Cefaleia. Cento e sessenta pacientes com IRC em estágio V responderam ao questionário durante as sessões de hemodiálise. A prevalência da cefaleia foi de 90% e no período da pesquisa 53,1% dos pacientes apresentavam o sintoma. Dentre os pacientes com cefaleia, mais da metade (55,3%) apresentavam critérios para cefaleia por privação de cafeína e cefaleia dialítica concomitantemente. O início da cefaleia variou de um mês a mais de cinco anos, sendo a maioria há mais de cinco anos. A frequência variou de crises esporádicas a mais de uma crise por dia, predominando mais de uma crise por semana. O intervalo entre as crises foi de dias, com duração média de menos de uma hora, sendo cessada com uso de analgésicos, automedicados, sem fator agravante. Essa condição é considerada um desafio entre os neurologistas e especialistas em cefaleia. São necessários mais estudos para diminuir essa prevalência, diminuir o uso abusivo de analgésicos e melhorar a qualidade de vida desses pacientes.

**Descritores:** Cefaleia; Diálise Renal; Transtornos da Cefaleia.

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## INTRODUCTION

Headaches are classified as either primary or secondary, based on the absence or not of underlying structural or metabolic disruptions causing the condition. This is a very frequent symptom in patients with renal failure undergoing hemodialysis.<sup>1</sup>

Headaches are triggered by several factors, which are either intrinsic or extrinsic, since individuals with migraines have lower thresholds to certain exposures, leading to a series of events and culminating in pain.<sup>2</sup>

Headaches are particularly relevant as a complication of hemodialysis, given that this condition increases the discomfort felt by patients undergoing this therapy. Moreover, there is an increasing number of patients that rely on this procedure. The relationship between hemodialysis and headaches can be observed at the beginning of the dialysis treatment, which can be followed by nausea, vomiting, muscle spasms, disorientation, systemic hypertension and convulsions.<sup>3,4</sup>

The most frequent triggering factors for dialysis headache, either mentioned by patients or by the medical team, were arterial hypertension (38%), followed by no identified factor (26%), arterial hypotension (12%) and changes to body weight (6%). Another factor mentioned as a trigger for headaches during hemodialysis were electrolyte disorders.<sup>5</sup>

Dialysis headache frequency was first described in 1972, with 70% of hemodialysis patients suffering from headaches. Over the years, this frequency decreased, as shown in a recent study where this proportion was of 48%.<sup>6</sup>

During hemodialysis, several substances are depurated. The International Headache Society (IHS) emphasizes the decrease of serum caffeine as being responsible for headache crises during dialysis sessions. The main symptom of cessation of caffeine is headache.<sup>7</sup> The study of Maia and cols. reports the benefits of using caffeine before hemodialysis sessions as a prophylactic measure for headaches.<sup>8</sup>

The objective of the present study was to evaluate the prevalence of headache in patients undergoing hemodialysis sessions, particularly considering dialysis headaches due to caffeine-withdrawal.

## MATERIAL AND METHODS

This was a cross-sectional, observational, quantitative and qualitative study conducted at a treatment center for patients with renal failure who were undergoing hemodialysis. The study comprised questionnaires and interviews with these patients.

The questionnaire was developed by the authors and addressed biopsychosocial aspects (age, gender, housing, life habits, previous pathological history, professional activities, among others), in addition to clinical aspects regarding the presence of headaches (family history, time of disease, frequency, duration, location, intensity, quality of pain, associated symptoms, triggering factors, worsening factors and relief factors during a crisis) and criteria for the classification of headaches according to the IHS.

The Google Docs software was used to manage the database of this research. All patients were consulted in advance and manifested their interest in taking part of this investigation by signing a free and informed consent statement. Thus, patients answered the questionnaire voluntarily after agreeing to participate in the research.

This project was approved by the ethics in research committee of the educational institution - UNIG, CAAE: 68978517.4.0000.8044, registry number: 2.416.322.

## RESULTS

Questionnaires were applied to 160 patients, with stage-V chronic kidney disease, during hemodialysis sessions. Most patients were in their 70s (25%), followed by patients in their 50s (21.2%). Moreover, most patients were male (61.9%). Regarding marital status, most patients were married, and more than half lived with their spouse and/or children. Over 60% considered themselves stressed and mentioned hemodialysis and one of the causes. Only 9% were smokers and 10% reported drinking alcoholic beverages for more than 10 years. Only 18% carried out physical or cultural activities regularly. All patients reported not having a professional occupation because of the disease and 70% reported feeling difficulty in their everyday life. Nearly 87% of patients presented associated arterial hypertension.

Headache prevalence was 90% and over the period studied 53.1% of patients presented the symptom. Among these patients with headaches, over half (55.3%) presented criteria for concomitant caffeine-withdrawal headaches and dialysis headaches. In turn, 14.1% only presented criteria for dialysis headaches, according to the IHS.

The beginning of headaches varied between one month and more than five years, with most occurring for more than five years. Frequency varied from sporadic crises to more than one crisis a day, though more than one crisis a day predominated, which was compatible with hemodialysis sessions three times a week. The interval between crises was of a few days, with mean duration of less than one hour, which ceased with the use of self-medicated analgesics, with no worsening factor. The prevailing location of the pain was the front bilateral region, followed by the occipital and temporal regions, characterized as pulsating, with no aura, frequently associated with other symptoms such as scintillating scotomas, nausea, vomiting and photophobia. When asked about colors, most patients associated intensity of pain with the color red, followed by black.

## CONCLUSION AND DISCUSSION

A high prevalence of dialysis headache was observed, a frequent complication of hemodialysis that worsens the quality of life of patients that already present a debilitating disease. This condition is a challenge for neurologists and headache experts. The association between dialysis headache and headache by caffeine-withdrawal was observed in more than half of the patients with any kind of headache. More studies are needed to decrease this prevalence, to decrease the

abusive use of analgesics and improve the quality of life of these patients.

All patients reported that their headaches only improved with the use of analgesics. However, there are no controlled studies on prophylactic treatment or abortive treatment of dialysis headache.<sup>9</sup>

Frontal bilateral pain, characterized as pulsatile, with no aura, frequently associated with other symptoms such as scintillating scotomas, nausea, vomiting and photophobia is compatible with the literature found.

Despite their high prevalence, dialysis headaches remain scarcely studied.

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