



## Dialysis-Associated Headache in Brazil: a narrative review

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### Introduction

Patients undergoing dialysis are subject to many possible complications, with dialysis-associated headache being one of the more common ones. This condition is described in ICHD-3 as a headache without specific traits, that occurs during and due to hemodialysis. However, some aspects of this harmful disease to the quality of life of those patients are still obscure, a situation that demands additional investigations about this topic.

### Objective

To review the knowledge produced in Brazil about dialysis headache and its characteristics, epidemiology, pathophysiology, clinical manifestations, diagnosis and treatment.

### Methods

Searches for the terms “dialysis headache” and “Brazil” were conducted in the Pubmed database. 17 articles were retrieved, with 6 of them being chosen for the review as they had the most relevant information on the disease.

### Results

Dialysis headache occurs in 28 to 73% of dialytic patients. Recent studies point that this type of headache has a stronger association with patients that are women, have higher schooling levels, are undergoing hemodialysis for a longer length of time and have a history of primary headaches, such as migraine and tension-type headache, and psychiatric diagnoses, such as anxiety and depression. Almost all patients in dialysis with high impact headaches are stricken with dialysis headache. Its pathophysiology is subject of controversy, as many possible mechanisms, such as variations in blood urea, sodium, magnesium and arterial pressure, the dialytic disequilibrium syndrome, arterial hypotension, high CGRP (calcitonin gene-related peptide) levels, and the production of nitric oxide are cited. The involvement of the blood-brain barrier with associated cerebral edema due to changes to the osmotic gradient during dialysis is a possibility. A reduced pulsatility index at the median cerebral arteries bilaterally was reported on transcranial doppler examination of patients with active dialysis headache, suggesting that vasodilation has an important role in the development of this disease. Clinically, it's a throbbing headache with a typically insidious start, mean intensity of 6.7/10 with a standard deviation (SD) of  $\pm 2.1$ , and mean duration of 215.2 (SD:  $\pm 429.2$ ) minutes, associated, in greater to lesser degrees, with nausea, phonophobia, photophobia, vomiting, worsening through exercise, aura and autonomic signs. Its pattern is typically tension-type, but it can also be migraine-like. It occurs mainly bilaterally, diffusely or in temporal areas. It usually happens after two hours of dialysis, and ends approximately 180.4 (SD:  $\pm 421.1$ ) minutes after the end of the session. Dialysis headache is usually treated with intravenous dipyrrone and paracetamol, presenting good results in some cases, even though this treatment isn't backed by any trials. Angiotensin converting enzyme inhibitors were once used to treat dialysis-associated headache episodes with little success. Apparently, dialysis headache tends to become less frequent and less intense over the months.

### Conclusion

Even though certain aspects of dialysis headache are well described in literature, its pathophysiology is still wrapped in uncertainty and its most common treatment doesn't have solid evidence backing it yet. Moreover, our research was not capable of finding an association with the manifestation of dialysis headache and chronic kidney disease prognosis. Therefore, new and more complete studies are deeply needed to fill the gaps in the knowledge about this recurrent complication of dialysis. Furthermore, as it's a narrative review, it wasn't possible to exclude selection bias in this study.

**Keywords:** Dialysis; Headache; Dialysis Headache; Brazil.



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