

Abstract

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Is low blood magnesium level associated with hemodialysis headache?

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OBJECTIVE: The aim of this study was to evaluate the prevalence, demographic, clinical features, and possible risk factors for hemodialysis headache (HDH).

BACKGROUND: HDH has been recognized for many years, but the pathophysiology of this condition is not known. High arterial blood pressure, decreased serum osmolality, sodium washout, and high blood urea nitrogen level are reported risk factors for HDH. Low serum magnesium (Mg) level is known to cause some types of headache, including migraine (menstrual migraine in particular), tension-type headaches, and cluster and posttraumatic headaches. Low Mg has also been reported in HDH patients.

METHODS: A total of 250 hemodialysis (HD) patients were questioned about problems with headache. Of these, 75 were diagnosed with HDH according to the revised International Headache Society criteria for 2003. Eighty age- and sex-matched HD patients without HDH were selected as a control group. For each HDH and control subject, arterial diastolic and systolic blood pressure, body weight, and serum levels of sodium, blood urea nitrogen, creatinine, and Mg were measured before and after one HD session. Urea reduction rate and ultrafiltration were determined. Serum levels of phosphorus, calcium, albumin, and parathormone were measured only before the session. Findings in the HDH and control group were statistically compared.

RESULTS: As noted, 75 (30%) of the total 250 HD patients surveyed were diagnosed with HDH. The mean headache duration in this group was 5.17 +/- 5 hours. Vertex location, bilateral headache, dull nature, and moderate severity were the most prevalent features of HDH. There were no statistically significant differences between the HDH and control groups with respect to causes of end-stage renal disease. There were no significant differences between the HDH and control groups with respect to predialysis values for blood urea nitrogen, body weight, and arterial blood pressure ($P > .05$), and the same was true for comparisons of the postdialysis values for these parameters. The mean predialysis sodium level in the HDH group was higher than in the control group ($P = .003$). Both the mean predialysis and mean postdialysis Mg levels in the HDH group were significantly lower than the corresponding levels in the control group ($P = .05$ and $P = .02$, respectively).

CONCLUSIONS: The results suggest that low blood Mg level and high blood sodium level may be risk factors for HDH. Magnesium supplementation may help patients with HDH whose serum Mg levels are found to be low.