

Impact of Serum Magnesium Level on BP, Weight Gain and Intradialytic Symptoms in HD Patients

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Objective: To evaluate the impact of serum magnesium (Mg) level on blood pressure, interdialytic weight gain, and intradialytic cramps and hypotension.

Design: A Cross-Sectional Study.

Setting: King Abdulaziz Medical City, Riyadh, Saudi Arabia.

Method: A cross-sectional study was performed on all patients dialyzing for ≥ 6 months who had no concurrent illnesses. The following data were documented: sex, age, hemodialysis (HD) vintage, pre-dialysis serum levels of calcium (Ca), Mg, intact serum parathyroid hormone (PTH), interdialytic weight gain, pre and post-dialysis systolic blood pressure (SBP) and diastolic blood pressure (DBP), intra-dialytic cramps and symptomatic hypotension.

Correlation between serum Mg and the above parameters were calculated using Pearson correlation test. Independent t-test was used to evaluate the impact of the measured parameters on intradialytic hypotension and cramps.

Result: Two hundred thirty-one patients were included in the study; the mean age was 59.8 ± 16.7 years, 127 (55.0%) were males, the mean HD vintage was 2.5 ± 1.8 years and the mean interdialytic weight gain was 1.8 ± 1.1 kg. Serum calcium, PTH, and Mg levels were 2.2 ± 0.22 mmol/l, 42.9 ± 59.1 pmol/l and 0.94 ± 0.18 mmol/l respectively. Cramps occurred in 31 (13.6%) and symptomatic hypotension in 29 (12.6%). Mg level was significantly positively correlated with pre-dialysis DBP ($P=0.016$) and SBP ($P=0.05$). There was no correlation between Mg level and age, sex, dialysis vintage, cramps, hypotension, Ca or PTH level.

A positive correlation was found between pre-dialysis DBP and weight gain ($P=0.0029$). Age was positively correlated with post SBP ($P=0.007$) and negatively associated with pre-dialysis DBP ($P=0.005$) and weight gain ($P=0.02$).

Conclusion: Mg level was associated with higher BP. Lower PTH level was observed in patients who suffered from cramps. Age was positively correlated with post SBP and negatively associated with pre dialysis DBP and weight gain.