ASSOCIATION BETWEEN PARAMETERS OF MINERAL BONE METABOLISM AND SURVIVAL IN PATIENTS UNDERGOING CHRONIC HEMODIALYSIS

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Beside the traditional risk factors which have an effect on cardiovascular diseases, hemodialysis patients are exposed to metabolic factors, such as malnutrition, microinflammation and oxidative stress, along with mineral bone disorder.

The aim of this study was to determine a three-year survival in patients undergoing chronic hemodialysis and to analyse correlation with parameters of mineral bone metabolism.

During the three-year follow-up 186 patients were included, of which 115 men (61.83%) and 71 women, with a mean age 61.47±12.42. The exact date and the direct cause of death were recorded and mineral bone metabolism parameters were analysed.

Out of 67 dead patients, 33 (49.25%) died from cardiovascular cause. Out of the total number of deaths in our study, only 11.9% of patients had a target PTH values. Patients with PTH>600 pg/ml are exposed to an increased risk from the overall mortality (RR=0.48, 95% CI (0.24-0.95), p=0.04), but also from cardiovascular mortality (RR=0.34, 95% CI (0.12-0.93), p=0.034) compared to patients with normal serum PTH.

These patients have a statistically significant higher serum phosphorus in comparison with patients with normal PTH levels (1.72±0.42 vs. 1.39±0.36, p=0.032). Phosphorus above 2.10 mmol/L increases the relative risk for the overall mortality rate by 60% (RR=0.59, 95% CI (0.35-0.89), p=0.049). In our study, 2-fold higher risk of all-cause mortality (RR=2.00, 95% CI (0.92-4.36), p=0.048), and even 3-fold higher risk of cardiovascular mortality (RR=3.03, 95% CI (0.71-1.29), p=0.039) were found in patients with Ca×P levels above 4.50 mmol²/L².

Three-year mortality rate of patients undergoing hemodialysis was 36.02%, while half of the patients died from cardiovascular disease. Patients with hyperparathyroidism and elevated calcium phosphorus product are at the highest risk, both for all-cause and cardiovascular mortality. Patients with hyperphosphatemia are at higher risk for all-cause mortality. Acta Medica Medianae 2015;54(4):37-45.

Key words: hemodialysis, survival, cardiovascular mortality, mineral bone metabolism