

THE INFLUENCE OF HYPOLIPEMIC THERAPY ON OXIDANT-ANTIOXIDANT STATUS IN HEMODIALYSIS PATIENTS WITH CHRONIC RENAL FAILURE

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There are a number of disturbances of antioxidant processes in hemodialysis patients with chronic kidney disease. Such patients have an increased production of free radicals and oxidative stress. They often run atherosclerosis due mainly to lipid abnormalities.

Aim: The evaluation of the influence of therapy with lovastatin and hypolipemic diet on the serum total antioxidant status (TAS) and the 8-hydroksy-2-deoksyguanosine (8-OHdG) level in hemodialysis patients.

Material and methods: The study group consisted of 71 patients. They were divided into 3 groups: Group I (n=30) – treated with lovastatin (20 mg daily), Group II (n=28) – treated with hypolipemic diet, and group III (n=13) – controls (without therapy). Plasma levels of TAS and 8-OHdG were determined. Blood samples were collected at the beginning of the study and after 6 months' therapy in Group I and Group II. The samples were collected in the morning before a dialysis session and then ultrafiltered and frozen at -70°C. Data were statistically evaluated and a P<0.05 was considered as indicative of significant changes.

Results: The 8-OHdG level decreased significantly (P=0.04) in Group I: 15.6 ±8.1 vs. 12.5 ±4.8 ng/ml. In Group II a decrease in the 8-OHdG level was not significant: 11.8 ±10.0 vs. 10.2±4.9 ng/ml; P<0.42. In the control group, there was no change: 15.5 ±9.0 vs. 15.9 ±4.0 ng/ml). The TAS level increased significantly in Group I: 1.28 ±0.20 vs. 1.37 ±0.11 mmol/l; P=0.01. In contrast, TAS decreased significantly in Group II: 1.55 ±0.14 vs. 1.45 ±0.11 mmol/l; P=0.007; which could be linked to its higher level to start with. In the control group there was no significant change: 1.42 ±0.00 vs. 1.40 ±0.12 mmol/l.

Conclusions: Lovastatin decreased the 8-OHdG level, which is one of the oxidative DNA damage metabolites. This decrease indicates that statins have a beneficial antioxidant influence. Such an influence was not observed in the patients treated with diet alone. The influence of statins and diet on the TAS levels is not clear-cut. It is likely that a number of changeable factors may influence TAS. One of those factors in patients with chronic renal failure could be a higher level of uric acid.