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# Serum selenium concentrations of gestational diabetic and control pregnant women in the second trimester of pregnancy

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High serum selenium concentrations are positively associated with the prevalence of type 2 diabetes according to recently published data, whereas in an intervention study, patients who received 200 µg selenium per day as oral supplementation for seven years, had a significantly higher risk of developing type 2 diabetes mellitus compared to the control group. In a previous study, serum selenium levels in gestational diabetic pregnant women were slightly, but significantly higher than in control pregnant women. This finding needed to be confirmed by a larger number of study participants.

To determine serum selenium concentrations and plasma total glutathione peroxidase activity of 31 gestational diabetic and 20 control pregnant women between the 24th and 28th week of pregnancy.

Serum selenium concentrations were measured by hydride generation atomic absorption spectrometry. Plasma glutathione peroxidase activity was determined by an end-point direct assay in the presence of reduced glutathione and cumene-hydroperoxide as co-substrates. Statistical analysis was performed using the Microsoft Excel 7.0 and Statistica™ 4.0 software packages.

Serum selenium concentrations were significantly higher in gestational diabetic (50.4±14.4µg/l) compared to control pregnant women (41.1±7.7µg/l, p=0.004). Plasma total glutathione peroxidase activity did not differ between the two groups of pregnant women (3.30±0.95 E/g protein in case of gestational diabetic and 2.84±0.60 E/g protein in case of control pregnant women). Serum selenium concentrations correlated significantly with plasma glutathione peroxidase activity in control pregnant women. In gestational diabetic study participants serum selenium concentrations correlated inversely with fasting plasma glucose values (p=-0.80).

This study confirmed our previous finding of significantly higher serum selenium concentrations in gestational diabetic compared to control pregnant women. The reasons for this observation are unclear; however, the correlation value shows that serum selenium levels seem to either influence or be influenced by fasting plasma glucose concentrations. Despite higher serum selenium levels in gestational diabetics, selenium-dependent glutathione peroxidase activities are similar in both groups of pregnant women.

# Examination of microvascular reactivity in juvenile essential hypertension and haemodialysis

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The relationship of juvenile essential hypertension and impaired microvascular function has not yet been demonstrated. In contrast with hypertension in adulthood, a simultaneous assessment of the markers of oxidative stress and the microvascular reactivity has yet not been performed in adolescent patients with essential hypertension.

To compare the microvascular reactivity and markers of oxidative stress in overweight and lean hypertensive adolescents (OHT, LHT), and young haemodialyzed (HD) patients as positive controls.

Twenty-three OHT adolescents, 10 LHT adolescents, 12 young HD patients and 19 controls were enrolled. Microvascular reactivity of the forearm was assessed by means of laser Doppler flowmetry, measuring alterations of the blood perfusion of the microvasculature. Endothelium-dependent and -independent vasodilation, informative of the endothelium and smooth muscle layers of the vessels, were assessed by means of acetylcholine and sodium nitroprusside iontophoresis, respectively.