

Link between diabetes mellitus and gender-related glutathione peroxidase at elderly patients

Simona Opris, Gianina Constantin and Anton Valuch
National Institute of Gerontology and Geriatrics, Romania

Oxidative stress in diabetes mellitus is greatly increased due to prolonged exposure to hyperglycemia and impairment of oxidant/antioxidant equilibrium. The aim of this study is to evaluate gender-differences in antioxidant system protection – glutathione peroxidase (GPX) at diabetes mellitus patients and if estrogens could be a protective factor for diabetes development. Patients were distributed in 2 groups: group I-men with diabetes and group II-women with diabetes versus control groups, apparently healthy, without significant injury. Serum glucose concentration was determined enzymatic at 500 nm, erythrocyte GPX activity with Paglia and Valentine method and haemoglobin by Drabkin method. Our data showed at group I a decrease of GPX vs. control (43 ± 11.31 vs. 67.33 ± 20.74 U/gHb; $p < 0.05$). At women group we found too low GPX activity vs. control (51 ± 16.02 vs. 72.84 ± 18.05 U/gHb; $p < 0.03$). Linear regression equations showed a positive correlation between age and GPX activity at both I and II group ($p < 0.001$ respectively $p < 0.05$). All these revealed for both, men and female with diabetes a low GPX activity, more emphasized in men. GPX has an important role in the modulation of osteoclastic differentiation and estrogens induced GPX expression in osteoclasts. This findings support the theory that estrogens increases GPX activity. Thus, men who are not protected by estrogens, have a more pronounced GPX reduction which may accelerate oxidative damage and further pathological complications. Understanding estrogens mode of action could be useful in patient's management and treatment.

Biography

Simona Opris has completed Bucharest University- Biochemistry section and she is scientific researcher III, principal biochemist- medical biochemistry specialization, at National Institute of Gerontology and Geriatrics "Ana Aslan" from 2001. She has published as author/co-author in more than 20 scientific papers, over 50 national and international congresses and co-worker in 6 national research programs. Research fields: oxidative stress indicators of normal and pathological aging -nitric oxide, GPX, secondary cellular mediators-cyclic guanosine monophosphate-cGMP; homocysteine; cardiac markers-natriuretic peptides (NT-proBNP); heat shock proteins (HSP60); immunological investigation methods by ELISA.