

## Minor changes in haemoglobin concentration significantly correlate with oxidative stress

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### Abstract

**Aim.** Low haemoglobin (Hb) concentration (anaemia) is a risk factor for cardiovascular disease (CVD). Recently, oxidative stress (OS) has been considered as a significant risk factor for CVD and the unifying mechanism for many cardiovascular risk factors. The aim of this study was to find whether there is any correlation between mild anaemia and oxidative stress. **Methods.** One hundred and forty four individuals were included in this study. Sixty one were patients with type 2 diabetes, 11 haemodialysis patients, and 12 healthy volunteers. Oxidative stress was estimated by the measurement of Prooxidant Antioxidant Balance (PAB) using a previously evaluated assay. Total Hb concentration was measured by a Sysmex XE-2100 haematology analyzer. **Results.** A significant inverse correlation between OS and Hb was established in diabetic and dialysis patients. A marginally significant negative correlation was found between OS and Hb in healthy volunteers. As was expected OS was significantly higher in haemodialysis than in diabetic patients than in healthy volunteers. **Conclusion.** An interrelation between OS and total Hb concentrations that is more prominent in patients with high oxidative stress has been observed for the first time.

### Author keywords

Anaemia; Diabetes mellitus; Haemodialysis; Haemoglobin; Oxidative stress

### Indexed Keywords

**EMTREE drug terms:** antioxidant; hemoglobin; reactive oxygen metabolite

**EMTREE medical terms:** adult; anemia; article; bioassay; blood analysis; controlled study; hemodialysis patient; hemoglobin blood level; hemoglobin determination; human; major clinical study; non insulin dependent diabetes mellitus; oxidative stress; protein content

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