

The synergistic action of antioxidative enzymes – correlations of catalase and superoxide dismutase in the development and during the treatment of type 2 diabetes



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Biography

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Introduction/Objective: The wider literature review of analysis in levels of Catalase (CAT) or Superoxide dismutase (SOD) enzymes in type 2 diabetes (T2DM) patients shows no pronounced consistency. We have assumed that the onset of diabetes does not significantly change individual quantities of these enzymes, but instead it changes the relationship of these enzymes.

Methods: The study consisted of 4 groups (n=30 for each group): obese individuals with disturbed glucose metabolism (subjects with newly diagnosed type 2 diabetes (T2DM)) before and after metformin treatment initiation, obese subjects with normal glucose tolerance (NGT) and a control group of healthy normal weight subjects. Appropriate anthropometric measurements and laboratory tests of biochemical parameters and antioxidative enzymes were carried out in all participants.

Results: Our study has confirmed that correlation of enzymes CAT and SOD is significantly changed in patients with newly diagnosed T2DM, and that it can be restored by reestablishment of glucose homeostasis with adequate antidiabetic treatment.

Conclusion: The applied therapy restores the dynamic balance of CAT and SOD, mainly through the reintegration of the new equilibrium in the enzyme system after achieving better glycemic control. These conclusions are only valid in the initial stages of T2DM treatment.

Keywords: antioxidative enzymes, obesity, glucose metabolism, metformin