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Manganese in atherogenesis: Detection, origin, and role

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Abstract

The role of transition metal ions in atherogenesis is controversial; they can participate in the hydroxyl radical generation and catalyze the reactive oxygen species neutralization reaction as cofactors of antioxidant enzymes. Using EPR spectroscopy, we revealed that 70% of the samples of aorta with atherosclerotic lesions possessed superoxide dismutase activity, 100% of the samples initiated Fenton reaction and demonstrated the presence of manganese paramagnetic centers. The *sodA* gene encoding manganese-dependent bacterial superoxide dismutase was not found in the samples of atherosclerotic plaques by PCR using degenerate primers. The data obtained indicates the perspectives of manganese analysis as a marker element in the express diagnostics of atherosclerosis.

Keywords

Atherosclerosis, Manganese, SodA gene, Superoxide dismutase