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Effect of sulfur baths on antioxidative defense systems, peroxide concentrations and lipid levels in patients with degenerative osteoarthritis.

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BACKGROUND: Due to possible antiinflammatory effects, sulfur baths are widely used for the treatment of rheumatic diseases. Previously it was demonstrated that drinking cures with sulfur can improve the antioxidative defense system and lower the peroxide levels of patients with chronic degenerative osteoarthritis. **OBJECTIVE:** This study therefore sought to investigate the effect of 3-week therapy with sulfur baths on antioxidative defense systems, peroxide concentrations, and lipid levels in patients with degenerative osteoarthritis. **PATIENTS AND METHODS:** After randomization one group of patients (n = 19) received sulfur baths during their stay at a health resort (sulfur group), whereas the other age-matched patient group served as controls (n = 19, control group), only receiving spa therapy. Total cholesterol levels, HDL, LDL, triglycerides and the antioxidative status, glutathione peroxidase, and superoxide dismutase (SOD) activities, and peroxide concentration, as an oxidative stress parameter, were evaluated at the begin and end of therapy. **RESULTS:** A 17.2% decline in peroxide concentrations (p = 0.10, n.s.) and significant lower SOD activities (p < 0.001) were detected in the sulfur group at the end of the therapy. Until the end of therapy total cholesterol levels changed differentially (p = 0.007) in the sulfur group (from 229.11 +/- 34.47 mg/dl to 217.46 +/- 40.45 mg/dl) and in the control group (from 197.63 +/- 34.66 mg/dl to 207.95 +/- 33.02 mg/dl). A similar significant group difference was found for LDL (p = 0.017), with a 5.9% reduction in the sulfur group and a 6.1% increase in the control group. Triglyceride concentrations were nonsignificantly reduced in both groups after 3 weeks at the health resort (sulfur group 11.2%, control group 20.2%). HDL values only minimally changed in both groups. **CONCLUSIONS:** The results presented here suggest that a sulfur bath therapy could cause a reduction in oxidative stress, alterations of SOD activities, and a tendency towards improvement of lipid levels. Copyright 2002 S. Karger GmbH, Freiburg