Effects of Ginkgo biloba extract on cytoprotective factors in rats with duodenal ulcer

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Abstract

The effects of Ginkgo biloba extract on cytoprotective factors in rats with duodenal ulcer were investigated. Sprague-Dawley rats were randomly divided into four groups: sham operation without ginkgo, sham operation with ginkgo, duodenal ulcer without ginkgo, and duodenal ulcer with ginkgo. Rats with duodenal ulcer were induced by 500 ml/litre acetic acid. Rats with ginkgo were intravenously injected with G. biloba extract from the tail at a dose of 0.5 mg/(kg.d) for 7 and 14 days. Pathological result showed that duodenal ulcer rats with ginkgo improved mucosal healing and inflammation compared with those without ginkgo after 7 days treatment. After 14 days treatment, duodenal ulcer rats with ginkgo significantly increased weight gain (34.0±4.5 g versus 24.5±9.5 g, $P<0.05$) compared with those without ginkgo. Duodenal ulcer rats significantly increased cell proliferation (27.4±4.0 and 27.8±2.3 BrdU-labelled cells in duodenal ulcer rats with and without ginkgo versus 22.4±3.5 and 20.8±0.5 BrdU-labelled cells in sham operation rats with and without ginkgo, $P<0.05$) compared with sham operation rats. Mucosal prostaglandin E2 concentration significantly increased by 129% ($P<0.05$) in duodenal ulcer rats with ginkgo compared with that in those without ginkgo. Duodenal ulcer rats without ginkgo significantly decreased superoxide dismutase activity in the duodenal mucosa and erythrocytes (19.4±6.7 U/mg protein versus 38.1±18.9 U/mg protein in the duodenal mucosa, and 4.87±1.49 U/mg protein versus 7.78±2.16 U/mg protein in erythrocytes, $P<0.05$) compared with sham operation rats without ginkgo. However, duodenal ulcer rats with ginkgo significantly increased erythrocyte superoxide dismutase activity (8.22±1.92 U/mg protein versus 4.87±1.49 U/mg protein, $P<0.05$) compared with those without ginkgo. Duodenal ulcer rats without ginkgo significantly increased plasma lipid peroxides (4.18±1.12 μmol/ml versus 1.60±1.10 μmol/ml and 1.80±0.73 μmol/ml, $P<0.05$) compared with sham operation rats without ginkgo and duodenal ulcer rats with ginkgo during the experimental period. G. biloba extract can improve weight gain and mucosal healing in duodenal ulcer rats by the actions of cytoprotection and antioxidation.