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Effects of Danhong Injection on platelet aggregation in hyperlipidemia rats

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ABSTRACT:

Ethnopharmacological relevance:

Danhong Injection (DHI), a Chinese medical product extracted from Radix et Rhizoma Salviae Miltiorrhizae (*Salvia miltiorrhiza* Bge., Labiatae, Danshen in Chinese) and Flos Carthami (*Carthamus tinctorius* L., Compositae, Honghua in Chinese), has been reported to have effects on inflammatory, anti-fibrinolytic properties, antithrombotic and decrease blood-lipid. It is extensively used for the clinical treatment of cardiovascular disease. This study aimed to investigate the effects of DHI on blood-lipid levels and platelet aggregation rate in hyperlipidemia rats.

Materials and methods:

Rats were randomly divided into 6 groups: normal control (NC), model control (MC), DHI-treated control at doses of 1.0 mL/kg, 2.0 mL/kg, 4.0 mL/kg, respectively, and Simvastatin positive control at dose of 2.0 mg/kg. All DHI treated groups were intraperitoneally injected for 7 days. The effects of DHI on serum triglyceride (TG), total cholesterol (TC), low density lipoprotein cholesterol (LDL-C) and high density lipoprotein cholesterol (HDL-C) were evaluated. And platelet activating factor (PAF), platelet membrane glycoprotein IIb/IIIa (GP IIb/IIIa) and 6-keto-prostaglandin F1a (6-K-PGF1a) were determined by enzyme-linked immunosorbent assay (ELISA). Moreover, the expression of prostaglandin I-2 (PGI₂), prostaglandin E-2 (PGE₂) and thromboxane A₂ (TXA₂) in liver was determined by real-time PCR.

Results:

Compared with the MC group, the rats treated with DHI had significantly reduced TC, TG, LDL-C, FIB, GP IIb/IIIa and platelet aggregation. Meanwhile, the thrombin time (TT), activated partial thrombin time (APTT), prothrombin time (PT), 6-K-PGF1a was significantly increased. Expression of PGI₂ and PGE₂ mRNA was significantly increased, whereas the TXA₂ was significantly reduced.

Conclusions:

This study demonstrated that the blood lipid and platelet aggregation has a regulatory effect after DHI treatment. The insights gained from this study will improve understanding of the mechanisms involved in the effect of DHI on hyperlipidemia and the pharmacological rationale for the use of DHI in diseases caused by formation of

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