Biomedical Research 2017; Special Issue: S479-S481

ISSN 0970-938X
www.biomedres.info

Effects of total glucosides of peony on expression of VEGF mRNA in skin tissue and peripheral blood of psoriasis mice.

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Abstracts

To analyze total glycosides of paeony's (TGP) influence on expression of VEGF mRNA in skin tissue and peripheral blood of Psoriasis mice and to explore the possible mechanism of TGP's treatment of Psoriasis. 60 mice were divided into six groups: Model group, treatment group, blank group and low-dose, middle-dose and high-dose TGP group, the mice in every group were applied 5% imiquimod cream on their backs except those in blank group. All the mice in each group were executed on the 8th day except those in treatment group, which were offered with middle-dose TGP treatment, continuously applied 5% imiquimod cream and executed until the skin lesion has vanished entirely. VEGF expression levels among different groups were surveyed by quantitative real-time PCR. On the 15th day of experiment, the skin lesion of mice in treatment group fades, and the tissue pathology doesn't show any abnormality. The VEGF mRNA expression amounts of mice skin tissue and peripheral blood from model group are all higher than those from blank group and the VEGF mRNA expression amounts of mice skin tissue from blank group, treatment group, high-dose and middle-dose TGP group are all lower than those from model group, with a statistical significant (P<0.05). Therefore, TGP can produce a therapeutic effect on psoriatic lesions by inhibiting expression of VEGF mRNA in the psoriasis model.

Keywords: TGP, VEGF, Quantitative real-time PCR.

Accepted on March 09, 2017

Introduction

Psoriasis is a kind of common, chronic and inflammatory skin disease [1], it affects 1-3% of the general people [2,3]. The pathology of psoriasis is featured by abnormal epidermal dysplasia, infiltration of a large number of inflammatory cells in the dermis and neovascularization [4,5]. Among the three histopathologic changes, the abnormality of the dermal papillary vasculature appears first, indicating that neovascularization perhaps be one of the key characteristic of psoriasis pathogenesis [6]. VEGF was identified as a strongest and most specific direct angiogenic diathesis that was intensively up-regulated in psoriatic skin lesions [7]. Therefore, VEGF occupies a significant position in the occurrence of psoriasis [8-11]. Extraction of Radix Paeoniae Alba monomer is mainly a group of glycoside substances, including paeoniflorin, hydroxy paeoniflorin, paeonin, albiflorin, benzoylpaeoniflorin, collectively referred to as the total glucosides of paeony (total glucosides of peony, TGP). It has been reported that TGP has effects on skin tissue. However, the mechanism was still unknown.

Materials and Methods

Animal experiments and drug treatment

Sixty adult female BALB/c mice, weighing 18-20 g (offered by animal experiment center of Southern Medical University) were employed in study. The mice were randomly divided into six groups: Treatment group, model group, blank group and different concentration of TGP groups: low-dose, middle-dose and high-dose TGP group, with 10 mice in each. A mice model of psoriasis was produced by applying 5% imiquimod cream on it's naked backs 50 mg each, once a day. Except those in blank group, the other mice of five groups establishes psoriasis animal models.

TGP dissolves in normal saline according to the required dose and doses by gavage, once a day, 0.4 ml each. The mice from low-dose, middle-dose and high-dose when they were modeled, were given 50 mg/kg•d, 100 mg/kg•d, 200 mg/kg•d TGP respectively, while those from model group and blank group were given normal saline by gavage with the same quantity, and executed on the 8th day. On the 9th after the modeling of the treatment group, the mice were continuously applied 5% imiquimod cream on their backs, offered with 100