

Effects of three purgative decoctions on inflammatory mediators

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摘要

Abstract

In traditional Chinese medicine (TCM), there are three Cheng-Chi-Tang decoctions (CCTDs) including: Ta-Cheng-Chi-Tang (TCCT), Xiao-Chen-Chi-Tang (XCCT) and Tiao-Wei-Chen-Chi-Tang (TWCCT), which are the frequently used purgative remedies to treat "internal heat"-induced symptoms like a bloated and painful abdomen, hard stools and fever, etc. Constituents in each formulation are *Rheum palmatum* L. (Polygonaceae), *Magnolia officinalis* Rehd. et Wils. (Magnoliaceae), *Citrus aurantium* L. (Rutaceae), *Mirabilitum* (mirabilite, crystals of sodium sulfate, Na₂SO₄) for TCCT; *Rheum palmatum*, *Magnolia officinalis*, *Citrus aurantium* for XCCT; and *Rheum palmatum*, *Mirabilitum*, *Glycyrrhiza uralensis* Fisch. (Leguminosae) for TWCCT. However, the underlying mechanisms for purging internal pathological heat are far from fully clarified, and few scientific investigations have been carried out to delineate the relationships between the anti-inflammatory effects and laxative potencies of these formulations. In this study, the anti-inflammatory effects of the three CCTDs on lipopolysaccharide (LPS)-induced nitric oxide (NO) and prostaglandin E (PGE₂) production in RAW 264.7 cells, carrageenan-induced paw edema in mice and the laxative effect in mice were explored. The results showed that TCCT inhibited LPS-induced NO and PGE₂ production and inducible nitric oxide synthase (iNOS) expression in RAW 264.7 cells more effectively than did XCCT or TWCCT. Moreover, paw edema of carrageenan-treated mice was significantly attenuated in mice pretreated with 1 g/kg TCCT. TCCT also showed the strongest purgative activity among the three formulations. These findings indicate that TCCT has anti-inflammatory effects in addition to its traditionally known purgative activities. It may have potential to treat inflammatory disease conditions.