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Traditional Chinese medicine for activating blood circulation and detoxifying in unstable angina pectoris: A systematic review and meta-analysis

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Abstract *Objective:* The purpose of this review was to evaluate the effectiveness of traditional Chinese medicine for activating blood circulation and detoxifying (ABCD) in patients with unstable angina pectoris.
Methods: We performed an electronic literature search of six medical databases for relevant articles published up to December 2014. Randomized controlled trials that compared ABCD Chinese medicine (alone or alongside conventional drugs) with conventional drugs or other Chinese medicines alone were included. A meta-analysis was performed for the following outcome measures: reduction of angina symptoms, electrocardiogram improvement, blood lipid levels, inflammatory factor levels, and plasma fibrinogen levels.
Results: In total, 11 moderate- to low-quality studies involving 686 patients were included. The evidence indicated that ABCD Chinese medicine exhibited superior effectiveness in relieving angina symptoms compared with conventional drugs [relative risk, 1.23; 95%

Abbreviations: ABCD, activating blood circulation and detoxifying; UAP, unstable angina pectoris; RCTs, randomized controlled trials; RAS, reduction of angina symptoms; ECG, electrocardiogram; FIB, fibrinogen; CI, confidence interval; RR, relative risk; ACS, acute coronary syndrome; MI, myocardial infarction; hs-CRP, high-sensitivity C-reactive protein; CBM, Chinese Biological Medicine; CNKI, China National Knowledge Infrastructure; VIP, Chinese Scientific Journal database; WFDP, WanFang Digital Periodicals; WMDs, weighted mean differences; FAA, frequency of angina attacks; DAA, total duration of angina attacks in 24 h; SRRN, stopping or reducing rate of nitroglycerin; TC, total cholesterol; TG, triglyceride; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol (LDL-C); TNFα, tumor necrosis factor alpha; CRP, C-reactive protein.

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confidence interval, 1.05—1.44]; however, electrocardiogram improvement was not very significant (relative risk, 1.21; 95% confidence interval, 0.91—1.62). Moreover, ABCD Chinese medicine exhibited superior anti-inflammatory, anticoagulant, and lipid-lowering effects compared with other medicines.

Conclusions: Within the methodological limitations of the included studies, our results suggest that ABCD Chinese medicine is beneficial for the treatment of unstable angina pectoris.

Introduction

Although therapeutic strategies for coronary heart diseases have greatly advanced and mortality rates have decreased in Western countries over the past few decades,[1] mortality and morbidity associated with these diseases are still increasing in China, where a large number of patients are diagnosed with acute coronary syndrome (ACS). ACS includes unstable angina pectoris (UAP), non-ST-elevated myocardial infarction (MI), and ST-elevated MI, which describe different degrees of myocardial ischemic states.[2] UAP is the most common clinical presentation of ACS. Conventional medications for UAP include aspirin, angiotensin-converting enzyme inhibitors, beta-blockers, calcium antagonists, and nitrates.[3] However, all these drugs may have undesirable effects. For example, aspirin can potentially increase the incidence of hemorrhage and some patients have acquired resistance to the drug.

Traditional Chinese medicine has become a popular treatment for UAP. According to modern medical theory, platelet activation, thrombosis, and inflammation are central to UAP pathogenesis. In contrast, according to traditional Chinese medicine, blood stasis is at the core of UAP development. If blood stasis is not eliminated, it results in the production of toxins over time. Therefore, numerous modern medical studies have been conducted on the use of traditional Chinese medicine for activating blood circulation and detoxifying (ABCD). Basic studies have revealed that ABCD can decrease tissue damage and the expression of inflammation-related factors in the rat model of carotid artery thrombosis,[4] inhibit the nuclear factor kappa B pathway and decrease matrix metalloproteinase-9 in the aorta of apolipoprotein E knockout mice,[5] decrease serum high-sensitivity C-reactive protein (hs-CRP) levels,[6] decrease apoptosis and oxidative damage to umbilical vein endothelial cells induced by oxidized low-density lipoprotein,[7] and inhibit coagulation and platelet activation in a rat model of acute MI.[8]

In clinical practice, ABCD Chinese medicine has been found to exhibit add-on effects in UAP patients; it can enhance the effectiveness of conventional medicine in relieving angina symptoms,[9—12] decrease the dosage of nitroglycerin, and minimize adverse effects.[13] However, evidence supporting or disproving these cardiovascular protective effects has not been systematically reviewed. We therefore conducted this study to systematically and objectively evaluate the clinical efficacy of ABCD Chinese medicine for UAP based on a comprehensive understanding of previous studies and meta-analyses of randomized controlled trials (RCTs).

Methods

Search strategy

We performed an electronic literature search using the following databases: PubMed (1989—December 2014), Web of Science (1990—December 2014), Chinese Biological Medicine (CBM; 1990—December 2014), China National Knowledge Infrastructure (CNKI; 1989—December 2014), Chinese Scientific Journal (VIP; 1989—December 2014), and WanFang Digital Periodicals (WFDP; 1989—December 2014). There were no language restrictions. We used the following English search terms alone or in combination: "traditional Chinese medicine," "activating blood circulation and detoxifying," "unstable angina pectoris," "randomized controlled trials," "controlled trials," and "randomly." Chinese search terms included generic names for UAP ("Bu_wen_ding_xing_xin_jiao_tong"), ABCD (Huo_xue_jie_du or Hua_yu_jie_du), frequently used herbal formulae for ABCD (Wu_wei_xiao_du_yin, si_miao_yong_an_tang or Xian_fang_huo_ming_yin), and randomized (Sui_ji).

Study selection

The inclusion criteria for studies were as follows: RCTs; inclusion of patients diagnosed with UAP according to accepted criteria; comparison of ABCD Chinese medicine as an intervention or co-intervention (alongside conventional drugs for UAP) with no treatment, placebo, other types of Chinese medicines, or conventional drugs; measurement of the effectiveness of ABCD Chinese medicine for UAP by a reduction in angina symptoms (RAS), electrocardiogram (ECG) improvement, and laboratory indices.[14]

Data extraction and methodological quality assessment

Two investigators (Ying Zhang and Xiaojuan Ma) evaluated all studies and independently extracted relevant data from each using a structured table. To resolve any disputes, a third investigator (Dazhuo Shi) was consulted.[14] The following data were extracted: number of patients in experimental and control groups, age, UAP diagnostic criteria, intervention, treatment duration, and outcome