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Review

The effect of Chinese herbal medicine on non-biliogenic severe acute pancreatitis: A systematic review and meta-analysis

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ABSTRACT

Ethnopharmacological relevance: More and more clinicians and researchers have realized that clinical trials are necessary to define clinical efficacy effect. Even though the number has been substantially growing for the past years, the finished and reported trials are limited. Nevertheless, those documented trials are important and precious, and comprehensive evaluation and analysis of them are warranted at current stage. Our goal was to evaluate the effect of Chinese herbal medicine (CHM) on non-biliogenic severe acute pancreatitis (SAP) by conducting a systematic review and meta-analysis of prospective randomized controlled studies.

Methods: Relevant studies were identified by PubMed, Cochrane Library, EMBASE, China Biomedical Database web (CBM), China National Knowledge Infrastructure Databases (CNKI), and Wanfang database up to 2014.Reference lists of retrieved articles were also reviewed. Two reviewers independently assessed studies for inclusion and extracted data. The main outcome data of trials were analyzed by using RevMan5.2. Odds ratio (OR) or mean difference (MD) with a 95% confidence interval (CI) was used as effect measure. Either a fixed or a random-effect model was used to evaluate the effect of CHM on non-biliogenic SAP.

Results: Twenty two prospective randomized controlled studies involving 1388 participants were included in the meta-analysis. CHM was tested to be more effective than reference group: Mortality [OR: 0.43, 95% CI (0.29, 0.64)], overall efficiency [OR: 4.0, 95% CI (2.72, 5.89)], operability [OR: 0.313, 95% CI (0.21, 0.46)], rate of complications [OR: 0.37, 95% CI (0.27, 0.50)], Length of hospitalization [MD: −9.70, 95% CI (−12.88, −6.51)] compared with reference group.

Conclusions: No serious adverse events were reported. This meta-analysis provides evidence suggesting that CHM seems to be an effective and safe treatment for people with non-biliogenic severe acute pancreatitis (SAP). However, the poor methodological quality of most of the trials means that we may be unable to reach a definitive conclusion. Hence, the effect of CHM in the treatment of non-biliogenic SAP warrants rigorously designed, multicentre, large-scale trials with higher quality worldwide.

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1. Introduction

Acute pancreatitis (AP) is a relatively common kind of acute abdominal disease, which manifests a mild and self-limiting condition in most cases (O'Keefe and McClave, 2005). The estimated incidence of acute pancreatitis in patients is 35–80 cases per 100,000 per annum (Steinberg and Tenner, 1994), and approximately 25% of patients with acute pancreatitis develop severe acute panreatitis (Neoptolemos et al., 1998), associated with a profound systemic inflammatory response syndrome (SIRS), varying degree of multiple-organ failure multiple organ dysfunction syndrome (MODS), and a mortality rate of 15–40% (Wang et al., 2009).

The management of SAP is a challenge because of its high mortality, which is due to multiple organ dysfunction syndrome (MODS) and systemic inflammatory response syndrome (SIRS) or infections of the necrotic pancreas (Wang et al., 2007). Intensive care unit (ICU) management, pancreatic rest, and nutrition support have emerged as the cornerstones of therapy for the patient with SAP, which aims to minimize pancreatic stimulation. And the use of antibiotics in SAP remains controversial (Xiong et al., 2006). Since SAP is an inflammatory disease, Chinese herbal medicine (CHM) which can produce a potential effect of multi-target therapy has been paid more attention in recent studies.

Various researches have demonstrated that CHM provides a wide range of positive effects during the treatment of SAP. In recent years, more and more herbal products are thought to be effective and safe in reducing the levels of serum amylase, urinary amylase, neutrophilic granulocyte and tumor necrosis factor-α (TNF-α), IL-1, IL-2, IL-6, and other chemokine, and then improving symptom of SAP patients. However, most of the studies are not multicentre, large-scale trials. With recently accumulating evidence, our goal, therefore, was planned to evaluate the effects and safety of CHM in treatment of patients with SAP by conducting a meta-analysis of prospective randomized controlled study.

2. Methods

2.1. Search strategy

We attempted to report this study in accordance with the criteria for meta-analysis of prospective randomized controlled trails. A systematic search was conducted in six databases—PubMed, EMBASE, Cochrane Library, Chinese Biomedical Literature database (CBM), CNKI database, and WanFang database. We used the following keywords treated as title/abstract for the literature search: "pancreatitis" or "acute pancreatitis" or "severe acute pancreatitis" or "acute necrotizing pancreatitis" and "traditional Chinese medicine" or "integrative medicine" or "alternative-medicine" or "herbal" or "herbs-botanical drugs" and examined the reference lists of the obtained articles. The search was restricted to studies in humans. No restrictions were imposed on publication language. We contacted authors of original studies for additional data when necessary.

2.2. Study selection

We performed an initial screening of titles or abstracts, and then screening full-text of the studies. Studies were considered to be eligible for inclusion if they met all of the following criteria: (1) study design: prospective randomized controlled trials (RCTs); (2) participants: patients with predicted non-biliogenic severe

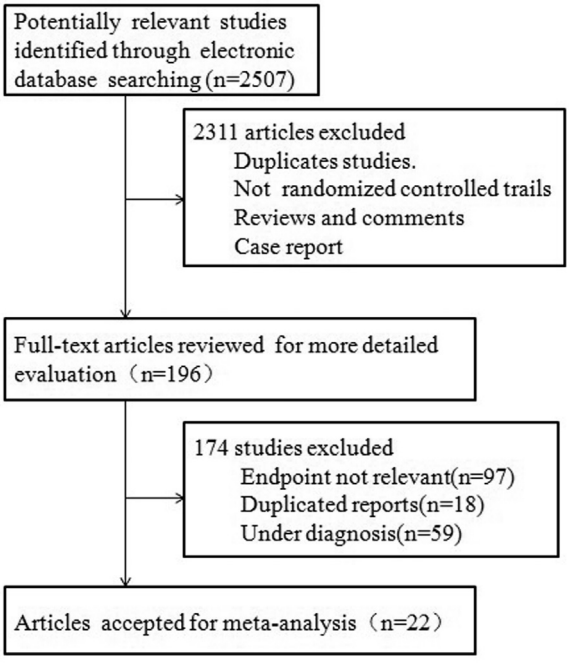

Fig. 1. Flow chart of study selection.

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