

SYSTEMATIC REVIEW

Influence of clinical pathways used the hospitals of Traditional Chinese Medicine on patients hospitalized with stroke: a systematic review and Meta-analysis

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Supported by The Special Fund of Traditional Chinese Medicine Scientific Research (Study on the Key Technology of Data Center of Traditional Chinese Medicine, No. 201407001-13); Self-selected Subject of China Academy of Chinese Medical Sciences (Study on Development Strategy and Planning of National Traditional Chinese Medicine Data Center, No. ZZ060815); National "Twelfth Five-Year" Plan for Science Technology of China (No. 2013BAI02B10)

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Accepted: July 19, 2016

Abstract

OBJECTIVE: To evaluate the influence of clinical pathways in the hospitals using the Traditional Chinese Medicine in treatment of stroke in terms of postoperative complications, length of stay (LOS), costs incurred during hospitalization, compared with standard medical care.

METHODS: Medline, Embase, China National Knowledge Infrastructure (CNKI) platforms, Wanfang databases and the Cochrane Central Register of Controlled Trials were searched. The search was performed up to August 2014. Each study was as-

essed independently by two reviewers. The assessment of methodological quality of the included studies was based on the Methodological index for non-randomized studies standard. Meta-analyses were performed using RevMan software, version 5.0.

RESULTS: Six studies met the study inclusion criteria and were included in the Meta-analysis for a total sample of 710 patients. The aggregate overall results showed that shorter length of stay in the clinical pathway group was observed during hospital stay was associated with the use of the clinical pathways. No significant differences were found in other effects.

CONCLUSION: Regardless the possible limitations, our findings show that clinical pathways can significantly reduce LOS. Although there is no clear evidence that clinical pathways can reduce hospital costs, but the cost of hospitalization path group for each included study were lower than the control group.

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Keywords: Medicine, Chinese traditional; Randomized controlled trial; Postoperative complications; Length of stay; Review

INTRODUCTION

According to The World Health Organization's report, stroke is a leading cause of disability and the second commonest cause of death in adults around the world.^{1,2} Every year, it is estimated that about 1.5-2 million new

strokes occur in China.³ Recent estimates, stroke is the second most common cause of death among both the urban and rural residents of China.⁴ In order to better carry out the rehabilitation of stroke research in recent years, many researchers are on the mechanism of recovery of neurological function after stroke, mode of rehabilitation treatment and rehabilitation services and so a lot of research.⁵ In China, Traditional Chinese Medicine (TCM) frequently is jointly used with western medicine in treatment of the stroke.^{6,7} Studies have found that infection is a common complication in the acute phase after stroke. Especially, pneumonia is the most common post-stroke infection and been associated with a relative risk of 3.0 for mortality in a study including 14293 patients with stroke.⁸ Researches have also revealed that standardized treatment can reduce infection and other complications.⁸ Fortunately, clinical pathways can not only reduce hospital costs, but also to regulate the treatment process.⁹

Although there are quite a lot of reports of TCM clinical pathways used for treatment of stroke patients, the results are not convincing because of the small sample size, short follow up duration and different levels of each independent research quality. Therefore, this comprehensive analysis was conducted for the purpose.

METHODS

Literature search

Medline, Embase, China National Knowledge Infrastructure (CNKI) platforms and Wanfang databases were searched using the following medical subject headings (MeSH) related to clinical pathways and Strokes: critical pathways AND Strokes AND Traditional Chinese Medicine up to August 2015. Secondly, we searched the MEDLINE (PubMed) for a non-MeSH, based on the following search string:

1# Search ('clinical pathway' OR 'critical pathway' OR 'care map' OR 'clinical path' OR 'multidisciplinary approach')

2# Search (Strokes OR apoplexy OR Cerebrovascular Accident OR Cerebrovascular Stroke OR Brain Vascular Accident OR Acute Cerebrovascular Accidents)

3# Search ('Traditional Chinese Medicine' OR 'Chinese Traditional Medicine' OR 'Zhong Yi Xue')

4# Search (#1 AND #2 AND #3)

We identified grey literature (literature that is not commercially published) by searching relevant sections of the Grey Matters checklist.¹⁰ The search was limited to articles published up to August 2014. No language restrictions were used.

Inclusion and exclusion criteria

Two investigators independently first screened the titles and abstracts, followed by screening of full texts for potentially eligible articles. Any disagreements were resolved by mutual consensus.

Eligibility criteria

Randomized controlled trials (RCT), controlled clinical trials, interrupted time series, cohort and case-control studies were included in the Meta-analysis. All the included studies compared the care provided through the clinical pathways with standard medical care. Western diagnosis criteria: transient, reversible, local cerebral blood circulation disorders, and then confirmed by CT scan. Main symptoms of TCM: paralysis, coma, speech unfavorable, or aphasia, paresthesia of partial body.

Studies were included when at least one of the following outcome indicators have been evaluated: frequency of postoperative complications (complications were defined as factors affecting recovery that required re-admission or prolonged hospital stay such as wound infections, chest infections, pulmonary edema, deep vein thrombosis, joint dislocation and manipulation, pressure ulcers and urinary tract infections), length of stay (LOS); the Weighted Mean Difference (WMD) of the LOS was used in the study as a synthetic measure of the LOS differences observed in the two groups) and direct costs (referred to total cost of acute hospitalization such as operating room, patient care unit, medications and supplies).

Exclusion criteria

Articles that were strictly descriptive (review articles, historical and theoretical articles), articles with no control group, articles that did not assess at least one of the four outcomes and non-specific articles were excluded. For continuous variables, since means are influenced by extremes of values, the studies that did not report the standard deviations were also excluded from this Meta-analysis.

Outcome measures

The purpose of this research was to combine the results of the published studies on clinical pathways for strokes in order to have a total vision of the effects of their implementation. Because clinical pathways are a complex intervention to keep the structure, the multidisciplinary team process and the follow-up of the outcomes of a specific care process alive, the results of the Meta-analysis were based on the 3 outcome measures that have been described before (postoperative complications, length of stay and costs). According to the literature the chosen outcomes were potentially the more suitable measures to describe the effect of the clinical pathways for strokes among the endpoints available in the included studies.

Data extraction and quality assessment

Two investigators independently extracted the data into separate databases using pre-designed form. The following information was extracted from each study: the first author's name; year of publication; geographic region/province; number of cases and controls; mean of

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