



Evaluation of clinical pathway in acute ischemic stroke: A comparative study



Min Zhao^{a,b}, Yongmei Yan^c, Nan Yang^{d,**,1}, Xinzhi Wang^e, Feng Tan^f, Jiexia Li^g, Xiaomin Li^h, Guoming Li^b, Juehui Liⁱ, Yuanqi Zhao^{j,**,1}, Yefeng Cai^{b,*}

^a National Clinical Research Center of Kidney Disease, State Key Laboratory of Organ Failure Research, Nanfang Hospital, Southern Medical University, 1023, Shatai South Road, Baiyun District, Guangzhou, Guangdong 510515, China

^b Department of Neurology, Guangdong Provincial Hospital of Chinese Medicine, 111, Dade Road, Guangzhou, Guangdong 510120, China

^c Department of Neurology, Affiliated Hospital of Shaanxi University of Chinese Medicine, 2, Weiyang West Road, Xianyang, Shaanxi 712000, China

^d Department of Neurology, Hospital of Traditional Chinese Medicine of Zhongshan, 3, Kangxi Road, Zhongshan, Guangdong 528400, China

^e Department of Neurology, First Affiliated Hospital of Henan College of Chinese Medicine, 19, Renmin Road, Zhengzhou, Henan 450000, China

^f Department of Neurology, Foshan Hospital of TCM, 6, Qinren Road, Foshan, Guangdong 528000, China

^g Department of Neurology, Conghua Hospital of TCM, 21, Town North Road, Jiekou Town, Conghua, Guangdong 510900, China

^h Department of Neurology, Jiangmen Wuyi Traditional Chinese Medicine Hospital, 30, Huangyuan East Road, Jiangmen, Guangdong 529000, China

ⁱ Guangzhou University of Chinese Medicine, 12, Airport Road, Baiyun District, Guangzhou, Guangdong 510405, China

^j Secondary Affiliated Hospital of Guangzhou University of Chinese Medicine, 111, Dade Road, Guangzhou, Guangdong 510120, China

ARTICLE INFO

Article history:

Received 24 April 2015

Received in revised form 8 August 2015

Accepted 8 August 2015

Keywords:

Clinical pathway

Acute ischemic stroke

Integrative treatment/medicine

Clinical efficacy

Economic evaluation

ABSTRACT

Introduction: Stroke is the leading cause of death and disability in Chinese adults and brings huge economic burden to the country. Clinical pathways (CP) have been shown to improve outcomes and reduce hospitalization costs and length of stay (LOS) for stroke patients. The objective of this study was to evaluate whether integrating Chinese medicine and western medicine into a clinical pathway for stroke could affect length of stay, hospitalization costs and clinical efficacy.

Method: This multicenter study consisted of a prospective clinical (CP) and a retrospective clinical study (RCP). Participants in the CP group accepted Chinese medicine and western medicine treatments based on a standard CP protocol while the subjects in RCP group had been offered routine treatment based on the doctors' personal experience. The information from participants in RCP group was retrospectively collected from the electronic medical system including the demographic characteristics, medical history, neurological impairment evaluation, LOS, hospitalization cost, and critical evidence-based processes in both western medicine and Chinese Medicine. The prospective study was conducted between 18th January to 30th, August, 2010 and the data collection on RCP participants were carried out at the same time.

The primary outcome measure was LOS while hospitalization cost, clinical efficacy, adherence of critical processes and incidence of complications were secondary outcome measures.

Results: LOS in CP and RCP group was 17.2 days and 21.4 days ($P < 0.001$) while hospitalization cost was 1776 US\$ and 2433 US\$ in CP and RCP group, respectively. 216 Patients (72.7%) in CP group compared to 401 patients (55.1%) in RCP group had improved clinical outcomes ($P < 0.001$). Adherence to all evidence-based critical processes in CP group was better than RCP group ($P < 0.001$). The multivariate analysis showed that after adjusting the conventional risk factors, CP application also played an important role in shortening LOS, reducing cost and improving clinical outcomes.

Conclusion: A clinical pathway for ischemic stroke based on the integration of Chinese medicine and western medicine was effective in shortening LOS, reducing hospitalization cost, improving clinical outcomes and elevating adherence to evidence-based critical processes.

© 2015 Elsevier GmbH. All rights reserved.

1. Introduction

Stroke is the leading cause of death and disability in Chinese adults [1], with a high occurrence and recurrence rate [2,3]. Similar to other countries, ischemic stroke is the most common type of

* Corresponding author. Fax: +86 20 81867705.

** Corresponding authors.

E-mail address: chiefcai@163.com (Y. Cai).

¹ These authors contributed equally to this work.

stroke in China, and accounts for 43% to 79% of all strokes [3]. Apart from the physical and psychological damage, stroke brings a huge economic burden to the country. Stroke management is estimated to cost the US around \$30–40 billion per year as reported by American Stroke Association Website [4] while the cost is 20 billion RMB in China [2].

How to optimize resource utilization, shorten LOS, reduce hospitalization cost without jeopardizing the clinical effect becomes crucial in clinical practice. The clinical pathway refers to the organized schedule of care procedures managed by the healthcare team in hospital through consensus.

The Australian National Stroke Foundation suggests that all patients with stroke who are admitted to the hospital should be managed using CP [5]. This recommendation was based on the evidence from the Cochrane Collaboration [5,6]. Results of several studies showed that CP can significantly improve the outcomes of patients with ischemic stroke and elevate the adherence of evidence-based processes [7]. At the same time, the application of CP reduced the hospitalization cost and LOS of the stroke patients [8]. Chinese medicine has been widely used for ischemic stroke in China for many years [9,10] and its efficacy has been evaluated and testified by more and more clinical trials. Recently, a randomized clinical trial demonstrated that “Xing Nao Kai Qiao” acupuncture improved the independency of ischemic stroke patients [11]. However, in clinical practice, the application of these effective Chinese medicine interventions were poorly implemented. The advantage of a clinical pathway of combining Chinese medicine and western medicine suits the reality of healthcare provision in China. The objective of this study was to evaluate whether the integration of Chinese medicine and western medicine through CP could shorten LOS, reduce hospitalization costs as well as improve clinical efficacy.

2. Methods

2.1. Study design and participants

This is a multicenter controlled study conducted in six centers over China including Guangdong Provincial Hospital of Chinese Medicine, Affiliated Hospital of Shaanxi University of Chinese medicine, Hospital of Traditional Chinese Medicine of Zhongshan, First Affiliated Hospital of Henan College of Chinese Medicine, Foshan Hospital of TCM (Traditional Chinese Medicine) and Conghua Hospital of TCM. The study consisted of two parts, a prospective and a retrospective study which were defined as the CP group and RCP group, respectively. Patients in CP group were enrolled from six hospitals above in 2010 while patients in RCP group were patients admitted during 2006–2008. All data were collected in 2010. Patients who were prospectively enrolled accepted the standard CP protocol while the corresponding information of patients retrospectively enrolled was collected from the electronic medical system and included the demographic characteristics, medical history, neurological impairment evaluation, LOS, hospitalization cost, and evidence-based processes for both western medicine and Chinese Medicine. The primary outcome measure was LOS while hospitalization cost, clinical efficacy and adherence of critical processes were the secondary outcome measures. This study was approved by the ethics committee (2008 GL-37) of 2nd Affiliated Hospital of Guangzhou University of Chinese Medicine and has been registered at clinicaltrials.com (NCT00966316).

2.2. Study population

Eligible participants were men and women aged 18–85 years old who met the diagnosis of ischemic stroke verified by

computed tomography (CT) or magnetic resonance (MR), with time from stroke onset over 6 h and within 14 days, had a National Institutes of Health Stroke Scale (NIHSS) score between 4 and 22 and provided informed consent. The exclusion criteria included those with heart failure (above grade III), respiratory failure, plasma ALT > 3 ULN (upper limit of normal) and plasma Cr > 442 μmol/L.

2.3. Study protocol

All the participants in CP and RCP group received the western medicine and Chinese medicine treatment. The western medicine part in the protocol of CP group was established according to guidelines [12] while the corresponding part of Chinese medicine was based on consensus through a Delphi method [13]. The protocol of CP group was scheduled into the first 24 h, 24–72 h, 7 days and until discharge. All the patients received antiplatelet and lipid-lowering medication as well as the antihypertensive, antidiabetic medication if there was a history of hypertension or diabetes. Rehabilitation started as soon as the vital signs and neurological function were stable. As to Chinese medicine, Chinese compounds and decoctions were given based on Yin-Yang syndrome differentiation and “Xing Nao Kai Qiao” acupuncture was applied. All the procedures were carried out exactly according to the protocol including the content and time. The content of the first 24 h in the protocol is detailed in Table 1.

The investigators (ZM, ZYQ) documented all variations which were defined as the necessary procedures that were not done or were not done at the right time or where additional procedures were used, as given in the protocol. The critical processes in the protocol included the evaluation of neurological function deficit (NIHSS), intracranial and extracranial arteries (magnetic resonance angiography, transcranial doppler (TCD) and ultrasound of carotid and vertebral arteries), dysphasia evaluation, application of rehabilitation, acupuncture, removing blood stasis and purgation

Table 1
CP protocol.

Time	First 24 h
Evaluation	<ul style="list-style-type: none"> ■ Physical examination ■ GCS ■ NIHSS ■ Noncontrast brain CT or brain MR ■ Evaluation and management of complications
Orders	<ul style="list-style-type: none"> ■ Blood pressure management (evaluation and application) ■ Temperature management (evaluation and application) ■ Aspirin application (evaluation and application) ■ Management of complication ■ Management of concomitant diseases ■ Rehabilitation ■ Blood tests: blood routine, blood sugar, electrolyte, coagulation function, ■ Markers of cardiac ischemia, renal and liver function, lipid profiles ■ ECG
Chinese medicine	<ul style="list-style-type: none"> ■ Decoction based on Yin and Yang syndrome ■ Relief of blood stasis ■ Purgation ■ Acupuncture
Nursing	<ul style="list-style-type: none"> ■ Swallow function evaluation (evaluation and application) ■ Skin care (Norton scale) ■ Fall prevention (evaluation and application)
Variation	
Signature	
Cost	

Download English Version:

<https://daneshyari.com/en/article/2479618>

Download Persian Version:

<https://daneshyari.com/article/2479618>

[Daneshyari.com](https://daneshyari.com)