Traditional Chinese Medicine for Patients of Coronary Artery Disease: Savior or Troublemaker? A Cohort Study About the Adherence to Antiplatelet Therapy

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INTRODUCTION

Coronary artery disease (CAD) is the second leading cause of death in China.¹ Management of CAD is based on long-term medications including antiplatelet therapy.² In China, traditional Chinese medicine (TCM)-based herbal drugs, which are criticized for lack of clinical evidence, are widely used.³ It is common for Chinese patients with CAD to take both aspirin and TCM or even just TCM. Our study purpose was to explore the influence of TCM on patients' decisions about antiplatelet therapy.

METHODS

This was a cohort study performed in the Fourth Affiliated Hospital of Zhejiang University. From January 1, 2016, to December 1, 2018, all patients undergoing coronary angiography were enrolled if they were diagnosed with CAD for the first time who consented to participate in this study. We obtained clinical and socioeconomical data and educated participants, prior to discharge on the importance of antiplatelet therapy in patients with CAD. After 6 months, patients were interviewed about their current medication and reasons for discontinuing antiplatelet therapy. An adherence score from 0 to 4 was assigned according to their frequency of taking antiplatelet drugs with a score ≥ 3 indicative of good medication adherence. Additional questions were asked about the presence of angina within the last month, other newly diagnosed diseases, complications of antiplatelet therapy, and the patient's reasons for discontinuing the medication. The frequency of using TCM was scored from 0 to 4, with scores ≥ 3 indicating high use. We excluded patients with contraindications for antiplatelet therapy, patients incapable of medication self-management.

Characteristics were compared between patients with good and poor adherence to antiplatelet therapy. Logistical

regression was performed to identify the independent risk factor for the poor adherence (SPSS v 18.0, SPSS, Inc, Chicago, IL).

RESULTS

Among 1191 patients surveyed at 6 months, 804 (67.5%) patients had good adherence to antiplatelet drugs, while 387 (32.5%) were poorly adherent. Patients with poor adherence to antiplatelet therapy were more likely to report side-effects and regularly used TCM (Table 1). Having medical insurance (OR: 0.640, 95% CI: 0.470–0.873) and having recent angina

Table 1 The Comparisons Between Patients with Good and Poor Adherence to Antiplatelet Therapy

Patients characteristics	Good adherence (n = 804)	Poor adherence (n = 387)	P
Demographic factors			
Male (%)	56	59.2	0.317
Age (years)	65.00 $\pm$ 10.17	66.09 $\pm$ 10.55	0.088
Social economic factors			
Poorly educated (%)	46.3	52.2	0.063
Married (%)	82.8	78.0	0.048
Urban residents (%)	65.8	61.2	0.137
Covered by medical insurance (%)	79.9	72.4	0.005
Comorbidities			
Hypertension (%)	63.3	67.2	0.196
Diabetes (%)	33.0	31.5	0.644
Ischemic stroke (%)	8.8	7.8	0.580
Peripheral vascular disease (%)	15.2	11.6	0.109
CAD-related factors			
Current smoker (%)	24.4	27.1	0.319
Regularly drinking (%)	33.2	33.6	0.896
Family history of cardiovascular disease (%)	28.4	23.0	0.050
Underwent coronary invasive therapy (%)	38.9	32.0	0.021
Recent angina (%)	15.5	8.3	<0.001
Side-effects	19.3	42.4	<0.001
Bleeding (%)	10.9	23.0	<0.001
Other side-effects (%)	9.6	23.0	<0.001
Use of TCM (%)	37.3	55.3	<0.001
Frequency of using TCM (%)			<0.001
0	62.7	44.7	
1	16.0	8.8	
2	14.3	15.0	
3	4.9	18.6	
4	2.1	12.9	

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Figure 1 Reasons reported by the patients for their poor-adherence to antiplatelet therapy.

(OR: 0.775, 95% CI: 0.635–0.947) both increased adherence to antiplatelet therapy, while experiencing side-effects from antiplatelet drugs (OR: 2.760, 95% CI: 2.074–3.673) and using TCM (OR 1.591, 95% CI: 1.434–1.766) decreased adherence to antiplatelet therapy. Spearman's correlation analysis showed that adherence to antiplatelet therapy was negatively correlated to the frequency of using TCM (correlation coefficient: - 0.286; $P < 0.01$) and suggested that there was a stepwise decrease of adherence to antiplatelet therapy with increased frequency of using TCM.

Among the reasons of poor adherence to antiplatelet therapy, doubts about the necessity of long-term antiplatelet therapy and belief that TCM was the proper medication for CAD both ranked highly. Other common reasons include side-effects of antiplatelet therapy, trouble caused by long-term medication, and financial reason (Fig. 1).

DISCUSSION

Poor adherence to antiplatelet therapy among Chinese patients with CAD is quite high. The use of TCM is an important barrier for patients' adherence to antiplatelet therapy. TCM and modern medicine have coexisted in China for decades. Unlike modern medicine, TCM is based on ancient Chinese philosophy such as "yin-yang" and "five elements".⁴ They lack convincing evidence from well-designed studies.⁵ Dozens of TCM are claimed able to promote blood flow and alleviate blood "stagnation" including the products of ginkgo and danshen, among others,⁶ and are not recommended in Chinese guidelines except as a form of complementary therapy. However, most patients do not read guidelines and are not followed regularly by family doctors in China. They are more

familiar with TCM, because their names are usually easier to understand and their medicine instructions are more attractive with magic effects listed and obscure side-effects mentioned. In addition, there is vigorous promotion of TCM on Chinese social media. The wide use of TCM has become a threat to evidence-based medicine and standard management of CAD. This may also be true among Chinese living in other countries, particularly recent immigrants. To improve adherence to antiplatelet therapy among high-risk Chinese patients, greater effort is required to educate patients about evidence-based medicine.

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Declarations:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

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