SHORT COMMUNICATION

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Use of Herbal Medicines by Patients Receiving Warfarin

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Abstract

Background: Patients receiving warfarin therapy are discouraged from taking herbal medicines. Whether patients adhere to this advice and, if they do not, the types of products they use, are not known.

Objective: The objective of this observational study was to estimate the magnitude of use of herbal medicines among Chinese patients attending the Warfarin Clinic of the Prince of Wales Hospital in Hong Kong.

Methods: A medical officer interviewed all patients who attended the Warfarin Clinic during May 2001. Patients were asked about the use of herbal medicines in the preceding week. Demographic data, indication and duration of warfarin therapy, and International Normalised Ratio (INR) value at the time of the visit were also noted.

Results: Of 107 patients interviewed, 28 (26%) claimed to have taken herbal medicines during the week prior to the clinic visit. The users of herbal medicines had lower INR values than non-users (mean INR value 2.41 ± 0.65 vs 2.75 ± 0.65, p = 0.019), possibly because of a lower warfarin dosage (mean dosage 2.93 mg/day ± 1.23 vs 3.34 mg/day ± 1.45; p = 0.185) and because a smaller proportion of such patients had heart valve replacement (21% vs 39%, p = 0.141). 'Herbal soup' (soup made at home from vegetables, meat and certain herbs for consumption with the main meals) and 'cool tea' (herbal decoction for the treatment of 'endogenous heat') were the most popular and were taken by 12 (11%) and 11 (10%) patients, respectively. Four patients took proprietary medicines each containing between one and three different herbs that could potentially enhance or antagonise the effects of warfarin. None of the patients in this study showed any evidence of thromboembolism or bleeding on the day of clinic visit.

Conclusion: Among Chinese patients treated with warfarin at a Hong Kong clinic, the use of herbal medicines was relatively common. Healthcare professionals play an important role in educating the patients and updating the list of herbal medicines that should be avoided by patients taking warfarin.

Concurrent use of herbal medicines may enhance or antagonise the anticoagulant effects of warfarin.[1] Therefore, patients receiving warfarin therapy are generally discouraged from taking herbal medicines.[2] Whether patients are adhering to this advice and the types of preparations used by patients who do not adhere to the advice have not previously been assessed. In this observational study, we estimated

the prevalence of use of herbal medicines among Chinese patients attending the Warfarin Clinic of the Prince of Wales Hospital in Hong Kong.

Subjects and Methods

The Prince of Wales Hospital is a 1400-bed general teaching hospital in the New Territories East of Hong Kong, serving a population of 0.9 million in 2001. The weekly Warfarin Clinic was set up in October 1998 and was run by a consultant haematologist and a medical officer. At the first visit, patients were given medical advice by the attending doctors,[2] including advice about potential problems due to concurrent use of herbal medicines such as 'danshen' (*Salvia miltiorrhiza*), which has anticoagulant and antiplatelet effects. To facilitate the retention of knowledge and adherence to our advice, patients also received a booklet with core information on warfarin therapy. Treatment was monitored by regular measurements of the International Normalised Ratio (INR).[3] Our experience has suggested that warfarin therapy aiming at an INR of 2.0–3.0 provides adequate protection against thromboembolism in Chinese patients while avoiding bleeding.[4] The intensity of anticoagulation would generally be greater for patients with heart valve replacement (target INR 2.5–3.0) than patients with atrial fibrillation (target INR 2.0–2.5).

The medical officer interviewed all patients who attended the Warfarin Clinic during May 2001. They were asked about the use of herbal medicines in the preceding week, including herbal decoctions, proprietary medicines containing herbs, 'cool tea' (a herbal decoction for the treatment of 'endogenous heat'), 'herbal soup' (soup made at home from vegetables, meat and certain herbs for consumption with the main meals) and tonics. Demographic data, indication and duration of warfarin therapy and INR value on the day of interview were also noted.

Data are presented as mean ± SD or median and ranges, where appropriate. The significance of difference between users and non-users of herbal medicines was assessed by independent sample t-test, Pearson Chi-squared test, Pearson Chi-square exact test, Fisher exact test or Mann-Whitney test, where appropriate.

Results

All 107 Chinese patients who attended the Warfarin Clinic in May 2001 agreed to be interviewed. Their clinical characteristics are shown in table I. Twenty-eight patients (26%) said that they had tak-

Table I. Clinical characteristics of 107 warfarin-treated patients who attended a warfarin clinic during a 1-month period. Twenty-eight patients had taken herbal medicines in the week prior to the clinic visit ('users') and 79 had not ('non-users')

	Users	Non-users	p-Value
Demographics			
Male : female ratio	8 : 20	36 : 43	0.116[a]
Age (mean ± SD) [y]	56.5 ± 12.4	56.4 ± 11.7	0.974[b]
Median duration of warfarin therapy (range) [mo]	56 (10–276)	48 (12–350)	0.859[c]
Warfarin dosage (mean ± SD) [mg]	2.93 ± 1.23	3.34 ± 1.45	0.185[b]
INR value on the study day (mean ± SD)	2.41 ± 0.65	2.75 ± 0.65	0.019[b]
Indications for warfarin therapy			
Atrial fibrillation (no. [%])	7 [25%]	14 [18%]	0.578[a]
Chronic rheumatic heart disease (no. [%])	10 [36%]	27 [34%]	0.933[a]
Heart valve replacement (no. [%])	6 [21%]	31 [39%]	0.141[a]
Other (no. [%])	5 [18%]	7 [9%]	0.293[d]

a Pearson Chi-square test.

b Independent sample t-test.

c Mann-Whitney test.

d Fisher exact test.

INR = International Normalised Ratio.

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en herbal medicines during the week prior to clinic visit. These patients had a lower INR value than non-users (2.41 ± 0.65 vs 2.75 ± 0.65, p = 0.019), possibly because of a smaller warfarin dosage (2.93 mg/day ± 1.23 vs 3.34 mg/day ± 1.45, p = 0.185) and a smaller proportion of patients with heart valve replacement (21% vs 39%, p = 0.141).

Twenty-four patients took one type of herbal product only. Ten patients took 'cool tea', eight took 'herbal soup', four took a herbal decoction and two took a proprietary herbal medicine. Four patients took two types of products: 'herbal soup' plus a proprietary medicine (n = 2); 'herbal soup' plus 'cool tea' (1); and 'herbal soup' plus tonics (1). Of the12 patients who took 'herbal soup', only one patient could name the herb used, which was *Longan arillus*. The four patients who took a herbal decoction did not know the names of the herbs involved.

A total of four patients took a proprietary herbal medicine which composed of different herbs in each patient. The composition of the different products was as follows: product 1 contained 'cebaiye' (*Biota orientalis*), 'dihuang' (*Rehmannia glutinosa*) and 'danshen' (*Radix Salvia miltiorrhiza*); product 2 contained 'chuanxiong' (*Ligusticum chuanxiong*) and 'dihuang' (*Rehmannia glutinosa*); product 3 contained 'baimaogen' (*Imperata cylindrica*); and product 4 contained 'dihuang' (*Rehmannia glutinosa*). According to a reference book on Chinese materia medica,[4] 'baimaogen', 'cebaiye' and 'dihuang' may promote coagulation and haemostasis, while 'chuanxiong' and 'danshen' may have antiplatelet and anticoagulant effects. The INR in all four of these patients was within the target range.

Eleven patients took 'cool tea': 'xiakucao' (*Prunella vulgario* L) [n = 3]; *Chrysanthemum flower* (n = 2), 'five-flower tea' (2); 'chuanlian' (*Coptis chinensis* Franch) [1]; 'cane and imperata beverage' (1); 'cool tea for common cold' (1); and 'cool tea' of unknown properties (1). The 'five-flower tea' consisted of the flowers of tree cotton, pagoda tree, honey suckle (*Lonicera japonica*), *Cleistocalyx operculatus* and *Plumeria rubra*. None of these herbs are known to have anticoagulant or antiplatelet effects.

None of the 107 subjects in this study showed any evidence of thromboembolism or bleeding on the day of clinic visit.

Discussion

In our Warfarin Clinic, patients were periodically reminded not to take herbal medicines because of the risk of loss of anticoagulation control. Despite our advice, 28 patients (26%) in this study said that they had taken herbal medicines during the week prior to clinic visit. 'herbal soup' and 'cool tea' were the most popular and were used by 12 (11%) and 11 (10%) patients, respectively. 'Herbal soup' is made at home but is also found in the menus of most restaurants. Freshly made 'cool tea' is sold in shops and is also sold in small cartons. Easy availability and the public's belief in their health values are possible reasons for the popularity of both types of preparation even among patients taking warfarin. Since patients may regard 'herbal soup' and 'cool tea' as part of the tradition rather than medicines, they should be asked specifically about the use of these products, especially when problems arise.

Four patients in this study took proprietary medicines that contained one to three herbs with the potential to interact with warfarin. Patients do not necessarily read the package inserts to find out what exactly they are taking. They may not consult their doctors about the pharmacological properties of the herbs present. Proprietary medicines may contain ingredients not listed in the manufacturers' package inserts.[5] Proprietary medicines are sold as capsules and tablets. Because of the ease of storage and administration, patients are more likely to take these preparations on a regular basis than herbal decoction.

Several factors may determine the likelihood of loss of anticoagulation control during the concurrent use of warfarin and herbal medicines. The risk is obviously higher for a potent herb such as 'danshen' (*Salvia miltiorrhiza*).[6] The amount taken, duration of treatment, whether herbs with synergistic or ant-

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agonist effects are taken together, other medications and underlying illnesses may also be important.

Warfarin has a narrow therapeutic index. Patients should avoid herbal medicines that can definitely or possibly interact with warfarin. Health-care professionals play an important role in educating the patients and updating the list of herbal medicines patients taking warfarin should avoid.

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