

Sishengtang decoction in alleviation of toxic and side effects of transarterial embolization *

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Abstract

AIM To observe the therapeutic effects of Sishengtang decoction in alleviating the toxic and side effects of transarterial embolization (TAE).

METHODS Fifty-four patients with liver cancer were divided randomly into Sishengtang decoction group (34 cases) and control group (20 cases). The changes of clinical symptoms and peripheral hemogram and some cellular immune functions were observed before and two weeks after TAE.

RESULTS Sishengtang decoction was superior to the control group in improving the digestive tract reaction. The leucocytes of peripheral blood and cellular immune functions (activities of NK cells and LAK cells) of control group decreased obviously after TAE, while that of Sishengtang decoction group decreased slightly, without obvious difference as compared with that of preoperation.

CONCLUSIONS Sishengtang decoction might improve the clinical symptoms and increase the leucocytes of peripheral blood and the cellular immune functions of TAE patients.

INTRODUCTION

After clinical and experimental studies of antitumor reaction produced by Sishengtang decoction^[1], we studied systematically the therapeutic effects of this decoction in alleviating the toxic and side effects of chemotherapy, and observe the changes of peripheral hemogram and the cellular immune functions.

MATERIALS AND METHODS

General data

Of 54 patients with liver cancer, submitted for TAE from May 1995 to October 1996, 48 were males and 6 females, aged from 31 to 74 years, averaging 48.8 years. Twenty-one cases were in stage III and 33 were in stage III clinically. These patients were divided into Sishengtang decoction group (34 cases) and control group (20 cases). There were 29 males and 5 females in the Sishengtang decoction group, with an average of 49.2 years of age, and 14 cases in stage II and 20 in stage III. In the control group, there were 19 males and 1 female, averaging 48.1 years in age, 7 in stage II and 13 in stage III.

Component of the decoction

Sishengtang decoction contains mainly: *Radix Astragali sen Hedysari* 30g, *Radix Rehmanniae* 10g, *Rhizoma Atractylodis Macrocephalae* 9g and *Somen Colicis* 15g. Components were regulated according to symptoms (RCAS): *Radix Asparagi* 15g and *Radix Diphysogonis* 15g were added for mouth dryness; *Radix Codonopsis Pilosulae* 30g and *Poria* 15g were added for lassitude; *Rhizoma Dioscoreae* 9g, *Endothelinm Cornenm Gigeriaw Galli* 12g, *Fructus Crataegi* 12g, *Fructus Hordei Germinatus* 12g and *Massa Fermentata Medicinalis* 12g were added for anorexia.

Administration and dosage

Sishengtang decoction and RCAS were used concomitantly in the Sishengtang decoction group. They were given a week before TAE, at 1 dose daily divided in the morning and evening. Only RCAS was used in the control group, administration and dosage were the same as the Sishengtang decoction group.

Observation

The changes in clinical symptoms of all the 54 patients were recorded one day and 5 days respectively after TAE and the peripheral hemogram and some

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cellular immune functions were measured 1 week before and 2 weeks after TAE^[2]. The activities of NK and LAK cells were detected by radioimmunoassay, with K₅₆₂ and Raji, as target cells. Detailed processes were in accordance with Reference 2 and 3.

Statistical treatment

The data were expressed as $\bar{x} \pm s$, and the comparison between the two groups was made by χ^2 test and t test.

RESULTS

Changes in clinical symptoms

In 3 main clinical symptoms observed, the effect of Sishengtang decoction was superior to that of the control group (Table 1).

Changes in laboratory indexes

There was no obvious difference in peripheral hemogram and some cellular immune functions between Sishengtang decoction group and control group before therapy, but with no obvious decline of these two indexes in the control group after therapy (Table 2).

DISCUSSION

TAE is one of the most effective therapies for the patients who can not be operated on and for some of the patients with recurrent liver cancer after operation. But the toxic and side effects of TAE, such as decreased leucocytes in peripheral blood, reaction of digestive tract and decline of body immune

functions, not only result in great pain for patients, but also become a main factor that influences the therapeutic effects of TAE. So it has been an important topic to seek effective traditional Chinese medicine or complex prescriptions which can reduce the toxic and side effects of chemotherapy.

Sishengtang decoction is a basic prescription, made according to the theory of traditional Chinese medicine and clinical experience from the specialists to relieve the patients from the toxic and side effects of radiotherapy and chemotherapy. In this prescription, *Radix Astragali sen Hedysari* invigorates the vital energy and the spleen; *Radix Rehmanniae* nourishes *yin* and invigorates the Kidney; *Rhizoma Atractylodis Macrocephalae* and *Semen Coicis* invigorate the spleen and regulate the middle warmer, and prevent the greasy of *Radix Astragali sen Hedysari* and *Radix Rehmanniae*. This prescription acts to invigorate both vital energy and *yin*, take care of Spleen and Kidney, not only prevent the exhaustion of congenital *yin* and *yang*, but also protect the acquired essential substance from food. Four elements of this prescription are all used unpreparedly in order to prevent too much dryness or greasiness of the herbal characters, which is of great significance in maintaining the process of digestion of the middle warmer and relieving the digestive tract reaction. According to the modern pharmacological analysis, *Radix Astragali sen Hedysari* and *Rhizoma Atractylodis Macrocephalae* can improve body immune function and increase leucocytes in peripheral blood; and *Semen Coicis* has the anti-cancer effects if used unprepared. When used together, these four elements will have the functions to reduce toxin and promote their effects.

Table 1 Effects of Sishengtang decoction and RCAS on clinical symptoms of TAE patients ($\bar{x} \pm s$)

Groups	n	Significant improvement	Improvement	No improvement	Improvement rate(%)
Sishengtang decoction(34)					
Lassitude	28	14	12	2	93.9
Poor appetite	23	12	9	2	91.3
Nausea	23	11	9	3	86.9
Control (20)					
Lassitude	17	6	6	5	70.1 ^a
Poor appetite	12	5	3	4	66.7 ^a
Nausea	14	4	7	3	78.9 ^a

^a $P < 0.05$ vs Sishengtang decoction

Table 2 Laboratory indexes of TAE patients in Sishengtang decoction group and control group ($\bar{x} \pm s$)

Groups	n	WBC($\times 10^9/L$)	PLT($\times 10^9/L$)	NK activities(%)	LAK activities(%)
Sishengtang decoction	34				
Before treatment		4.62 \pm 0.62	123.00 \pm 37.45	32.03 \pm 7.25	34.07 \pm 6.69
After treatment		4.44 \pm 0.63	116.23 \pm 29.42	31.04 \pm 6.92	32.03 \pm 6.76
Control	20				
Before treatment		5.31 \pm 0.82	31.92 \pm 47.93	141.20 \pm 5.22	32.87 \pm 4.85
After treatment		3.87 \pm 0.38	126.80 \pm 37.58	26.16 \pm 7.77 ^a	27.16 \pm 5.74 ^a

^a $P < 0.05$ vs before treatment in control

In the improvement of clinical symptoms and results of laboratory examinations, RCAS, used in the control group, though can partially improve the clinical symptoms, its effects are not as good as Sishengtang decoction. As for the increase of leucocytes in peripheral blood, the effects of Sishengtang decoction group is also superior to that of the control group. The results indicated that Sishengtang decoction can alleviate the toxic and side effects of chemotherapy.

In term of the cellular immune functions of TAE patients, the activities of NK and LAK cells of the control group were decreased markedly, but without significant difference in the Sishengtang group compared with that of preoperation. The results showed that Sishengtang decoction might in-

crease the leucocytes in peripheral blood and cellular immune functions, which is important in promoting the recovery of patients and enhancing the effects of TAE itself. The mechanism may be related to its enhancement and protection of blood production by marrow^[4].

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