Use of Complementary and Alternative Medicine in Japanese Patients with Liver Disease.

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Background and Aims : The use of Complementary and Alternative Medicine (CAM) may increase the patient's will to fight the disease and has some advantageous effects. However, it may also have the disadvantages of financial burden and side effects. The purpose of this study was to clarify the use of CAM in Japanese patients with liver disease. **Methods :** An anonymous questionnaire was administered to 500 outpatients in the Liver Disease Department in Gunma prefecture in east Japan, from August to June 1999. **Results :** Among 405 patients, 267 (65.9%) had experienced CAM, with 153 patients (37.8%) using it at that time. Among 267 patients who had experienced CAM, only 16.5% patients had consulted a doctor or nurse about it. The subjective evaluation as "effective" of CAM was only 10-30% in each therapy. Seven of 267 patients (2.6%) reported that their physical condition deteriorated due to CAM. The maximum difficulty in using CAM was "expense". **Conclusion :** Only a few patients consults a doctor or nurse about CAM. As for most CAM, the patients' subjective evaluations were low, and some side effects were reported. These suggests that patients with liver disease should learn the right and safe way to use CAM. (Kitakanto Med J 2005 ; 55 : 19~27)

Key Words : complementary and alternative medicine, liver disease, prevalence of Use, guidelines for Use

Introduction

There are about 459,000 liver disease patients in Japan.¹ Among chronic liver disease patients, many patients use CAM, and we often have consultations about it with them at the hospital. Previous studies reported that 50-70% of diabetic patients and atopic dermatitis patients were using CAM.^{2~5} However, no figure was reported for liver disease patients.

The use of CAM may increase the patient's will to fight the disease and has some advantageous effects. However, it may also have the disadvantages of financial burden and side effects. Therefore, its merits and the demerits are a topic of conversation in medical institutions in Japan.

The purpose of this study was to clarify the use of CAM in Japanese patients with liver disease. We aimed to clarify the following four points to devise a method of patient education about CAM use: 1, The rate of using CAM in liver disease patients in five hospitals in Gunma prefecture. 2, The type of CAM

and the subjective evaluation of its effects. 3, The purpose of CAM and the chance of began to use. 4, The consultation with a doctor or nurse by the patient using CAM.

Methods

Definition of CAM : In this study, CAM indicates all actions that the patient takes to improve their liver disease besides the treatment directed by the medical institution. Chinese and herbal remedies, vitamin supplements, health foods, magnetic therapy, balneotherapy, and acupuncture are included in CAM in this study. On the other hand, TJ-9 (Sho-saiko-to), TJ-41 (Hochu-ekki-to), TJ-48 (Juzen-daiho-to), TJ-108 (Ninjin-yomei-to), and Glycyrrhizin that are classified as CAM in Europe and the USA were not included as CAM in this study, because they are "formal medicines" usually used at hospitals in Japan.

An anonymous questionnaire combined with an anonymous interview was administered to 500 outpatients in the Liver Disease Department of five hospi-

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tals in Gunma prefecture in east Japan. Informed consent to this study was received from all patients. All the doctors in the liver disease departments of the five hospitals are research members belonging to the same study group. In these five hospitals, the Japanese traditional herbal medicine “kampo” has been designated a formal medicine for the liver disease treatment as well as in other hospitals in Japan.

An anonymous interview about the patient's background such as age, occupation, family background, type of disease, and subjective symptoms was performed, and the answers were noted on the question form. Afterwards, the patient filled in an anonymous questionnaire concerning their satisfaction rating to treatment and the circumstance of using CAM, and this was collected by mail. The period of the survey was from August to June 1999.

The content of the questionnaire was as follows. 1) experience of CAM. 2) purpose of use. 3) subjective evaluation of the effect by four-fold choice “effective”, “not effective”, “deteriorated”, and “not possible to judge it”. 4) monthly cost. 5) the chance of began to use. 6) consultation with doctor or nurse about using. 7) reason why they did not consult anyone about it.

Data analysis was performed using SPSS ver.11.0J for Windows. The χ^2 analysis and Mann-Whitney's U analysis were used for the statistical analysis. We used binary logistic analysis to clarify the factors relating to the use of CAM.

Results

Patient background

Four hundred five of 413 collected questionnaires were analyzed, having excluded incomplete forms. The patients' ages ranged from 24 to 84 years old and the mean age was 61.3 (SD $\pm$ 11.0) years old. There were 203 men (50.1%) and 202 women (49.9%). In ECOG Performance Status,⁶ patients with Grade 0 and Grade 1 were 96.6%. Grade 0 indicates “Fully active, able to carry on all pre-disease activities without restriction” and Grade 1 indicates “Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature”.

Table 1 shows the types of liver disease, including hepatitis C (266 patients, 65.7%), and cirrhosis (60 patients, 14.8%), liver cancer, and hepatitis B. The duration of therapy were ranged from 3 months to 40 years, with an average of 9.6 (SD $\pm$ 7.7) years.

One hundred sixty-one patients (49.8%) had some subjective symptoms. The major subjective symptoms were “fatigue” and “cramp in the leg”. The patient's recognitions of severity were “lethal disease” (52.6%), and “persists for life” (28.9%) and “getting well” (15.

8%). Two hundred seventy-seven patients (68.4%) were satisfied with their treatment, and, on the other hand, 45 patients (11.1%) were not satisfied.

Use rate of CAM

Two hundred sixty-seven (65.9%) of 405 patients had experienced CAM (Fig.1), and 153 (37.8%) were using CAM at that time.

Fig.1 Experience rate of CAM

Factors relating to the use of CAM

The relation between the patients' experience of CAM and their backgrounds was analyzed. The χ^2 analysis was used for statistical analysis. Table 1 shows the patients' backgrounds related to their experience of CAM. Only marriage was related and their age, academic background, religious beliefs, ECOG Performance Status and types of liver disease were irrelevant. The experience rate of CAM in divorcees and single patients was lower than in other patients. Table 2 shows the relationship between the factors relating to disease and the experience of CAM. Interferon therapy, fatigue, and recognition of severity were related, and the duration of therapy, complications, and satisfaction with treatment were not related. As for those patients who experienced interferon therapy, felt fatigue, and / or whose recognition of severity was lethal disease, the experience rate of CAM was high.

We tried binary logistic analysis by using the items in Table 1 and Table 2. However, the coefficients of determination R^2 were extremely low 0.08-0.10. Therefore, no appropriate logistic model was found.

Types and kinds of CAM

Fig. 2 shows the types of CAM experienced by patients. Herbal products and health foods including Chinese and herbal medicine, herbal tea, vitamin supplements and natural foods, were the most common (60.5%). Table 3 shows the specific kinds of CAM used by patients. “Turmeric” was used a lot, with 36.5% of patients using it. “nikko maple” (*Acer maximowiczianum* Miquel) (19.5%), “chlorella” (15.1%), “propolis” (14.8%), “various teas” (14.6), and “honey” (12.3%) were used.

Table 1 Relationship between backgrounds of patients and experience of CAM

n=405

Category	n	Experience of alterative medicine		χ^2 Test
		Yes	No	
Age	<65	219	153 (69.9)	4.73
	65-74	150	95 (63.3)	
	>75	36	19 (52.8)	
Sex	Man	203	128 (63.1)	1.25
	Woman	202	139 (68.8)	
Academic background	Junior high	140	92 (65.7)	5.96
	High school	135	98 (72.6)	
	Junior college	78	47 (60.3)	
	University	50	28 (56.0)	
Marriage	Non-responding	2	2 (100.0)	12.39** $\phi = 1.75$
	Single	18	8 (44.4)	
	Married	324	220 (67.9)	
	Divorce	14	13 (92.9)	
Religion	Bereavement	49	26 (53.1)	0.39
	No	332	218 (65.7)	
	Yes	52	37 (71.2)	
ECOG Performance Status	Non-responding	21	12 (57.1)	4.68
	PS0	317	206 (65.0)	
	PS1	74	48 (64.9)	
Occupational category	PS ≥ 2	14	13 (92.9)	0.79
	Full-time Job	89	61 (68.5)	
	Housewife	102	69 (67.6)	
	Self-employed	57	36 (63.2)	
Family	None	130	82 (63.1)	2.78
	Miscellaneous	12	7 (58.3)	
	Living alone	32	17 (53.1)	
	Their spouse	137	91 (66.4)	
Types of liver disease	Two generation	182	124 (68.1)	1.43
	Large three generation	49	33 (67.3)	
	Miscellaneous	5	2 (40.0)	
	Hepatitis B	29	19 (65.5)	
	Hepatitis C	266	178 (66.9)	
	Cirrhosis	60	41 (68.3)	
	Liver cancer	38	29 (76.3)	
	Autoimmune hepatitis	10	8 (80.0)	
	Miscellaneous	59	34 (57.6)	

**p<0.01

*1 "Herbal products and Health foods" includes Chinese and herbal medicine, herbal tea, vitamin supplement and natural foods.

*2 "Magnetic therapy" includes magnetic ring, necklace, and mattress.

*3 "Spiritual therapy" includes faith healing and occultism.

*4 "Acupuncture Therapy" include acupuncture and moxibustion

Fig.2 The types of CAM

Table 2 Relationship between factors attributed by disease and experience of CAM

n=405

Category		n	Experience of alterantive medicine		χ^2 Test
			Yes	No	
Duration of therapy	Below 4 years	117	70 (59.8)	47 (40.2)	2.91
	5-9 years	113	79 (69.9)	34 (30.1)	
	Over 10 years	175	118 (67.4)	57 (32.6)	
Treatment	Injection	No	213	131 (61.5)	3.51
		Yes	192	136 (70.8)	
	Varicosity sclerotherapy	No	378	247 (65.3)	0.51
		Yes	27	20 (74.1)	
	Interferon	No	291	183 (62.9)	3.78*
		Yes	114	84 (73.7)	
	Operation	No	381	252 (66.1)	$\phi=0.10$ 0.02
		Yes	24	15 (62.5)	
Subjective symptoms	Anorexia	No	381	249 (65.4)	0.56
		Yes	24	18 (75.0)	
	Fatigue	No	326	204 (62.6)	7.60** $\phi=0.14$
		Yes	79	63 (79.7)	
	Jaundice	No	398	262 (65.8)	0.00
		Yes	7	5 (71.4)	
	Cramp of lower limbs	No	359	233 (64.9)	1.09
		Yes	46	34 (73.9)	
	Miscellaneous	No	161	114 (70.8)	2.49
		Yes	244	153 (62.7)	
Complications	Hypertension	No	354	234 (66.1)	0.00
		Yes	51	33 (64.7)	
	Diabetes	No	363	234 (64.5)	2.74
		Yes	42	33 (78.6)	
Recognition of severity	Getting well	64	36 (56.3)	28 (43.8)	13.37** $\phi=0.18$
	Persists for life	116	66 (56.9)	50 (43.1)	
	Lethal disease	213	158 (74.2)	55 (25.8)	
Satisfaction to treatment	Very dissatisfied	14	9 (64.3)	5 (35.7)	3.39
	dissatisfied a little	31	24 (77.4)	7 (22.6)	
	Neutral	63	44 (69.8)	19 (30.2)	
	Satisfied a little	185	125 (67.6)	60 (32.4)	
	Very satisfied	92	56 (60.9)	36 (39.1)	

*p<0.05, **p<0.01

Table 3 Usage rate, kinds, and subjective evaluation of effects of CAM

n=405

Category	n	Usage rate (%)	Subjective evaluation of effect by user (%)				
			Effective	Not effective	Deteriorated	Not possible to judge it	Non-responding
Turmeric	148	36.5	18.9	13.5	0	54.1	13.5
Nikko Maple*	79	19.5	12.7	13.9	1.3	54.4	17.7
Chlorella	61	15.1	16.4	19.7	3.3	44.3	16.4
Propolis	60	14.8	18.3	15.0	3.3	48.3	15.0
Various tea**	59	14.6	15.3	10.2	0	52.5	22.0
Honey	50	12.3	14.0	12.0	0	38.0	36.0
Corbicula extract	50	12.3	14.0	10.0	0	64.0	12.0
Vitamin tablets	45	11.1	26.7	4.4	0	33.3	35.6
Silky fowl's egg	41	10.1	9.8	2.4	0	70.7	17.1
Royal jelly	40	9.9	20.0	5.0	0	62.5	12.5
Chinese medicine	35	8.6	34.3	11.4	2.9	40.0	11.4
Ginseng	30	7.4	20.0	23.3	0	33.3	23.3

*Nikko Maple ("Megusuri-no-ki": *Acer maximowiczianum* Miquel)

**Liquid extracted from various plant species with hot water

Subjective evaluation of the effect of CAM

Table 3 shows the users' subjective evaluations of the effect of CAM.

The evaluation of "Chinese medicine" was the

highest, and "vitamin tablets", "ginseng", and "royal jelly" followed. The evaluation of "not possible to judge it" and non-responding reached 70-90% in each CAM. Moreover, some patients, including one user

each of “nikko maple” and “Chinese medicine” and two users each of “chlorella” and “propolis”, answered that their disease had deteriorated. The symptoms of the deteriorated patients were cold and elevation of liver functional parameters. The subjective evaluation of “effective” was only 10–30% in each CAM.

Purpose of CAM

The purpose of CAM is shown in Table 4. The main purpose of CAM was “health promotion” (34.5%), and “radical cure of the disease” (29.6%), “prevention of deterioration” (25.8%), “for mere consolation”, and “to catch at straws” followed. 4.5% of patients answered “to maintain social relations” as the purpose.

Table 4 Purpose of CAM			n = 267
Purpose	n	%	
Health promotion	92	34.5	
Radical cure of the disease	79	29.6	
Prevention of deterioration	69	25.8	
For mere consolation	45	16.9	
To “catch at straws”	42	15.7	
Improve subjective symptoms	38	14.2	
For ease of mind	18	6.7	
Decrease side effects	14	5.2	
To maintain social relations	12	4.5	
Miscellaneous	12	4.5	

Chance of began to use CAM

Chance of began to use CAM were “friend’s recommendation” (35.2%), “family’s recommendation” (31.8%), and “other patient’s recommendation” (19.1%) (Table 5).

Table 5 Chance of began to use CAM			n = 267
Chance	n	%	
Friend’s recommendation	94	35.2	
Family’s recommendation	85	31.8	
Other patient’s recommendation	51	19.1	
Books and magazines	38	14.2	
Press advertising	26	9.7	
Television and radio	19	7.1	
Recommendation of drugstore	8	3.0	
Miscellaneous	14	5.2	

Cost of CAM

Table 6 shows the cost of CAM per month for the 153 patients who were using it at that time. The cost per month ranged from 0 to 91,000yen and the average was ¥11,319 (SD±15,180). Various patients grew turmeric and saved on the cost or used several kinds of expensive CAM.

The relation between the cost of CAM per month and the factors relating to patients is shown in Table 7. The cost of CAM was high in patients with hepatitis C,

Table 6 Monthly cost of CAM n = 153

Min	¥0
Max	¥91,000
Median	¥50,000
Mean	¥11,319
SD	¥15,180

64 years old or less, or whose purpose was “radical cure of the disease”, “to catch at straws”, and “improve subjective symptoms”. Sex, type of therapy, recognition of severity, and patient’s occupation were irrelevant.

The monthly cost of each CAM is shown in Table 8. “Chinese medicine” was the most expensive, with “ginseng”, “chlorella”, and “propolis” next.

Difficulty in using CAM

39.0% of patients experienced difficulty using CAM. The major difficulty was “expense” 26.2%, and “pain or bad taste during use” 7.9% with “deterioration of physical condition” 2.6% next (Table 9).

Consultation with doctor or nurse

Among the 267 patients who had experienced CAM, only 16.5% patients had consulted a doctor or nurse about using it, and 68.9% of patients answered clearly that they had not consulted anyone about it (Table 10). The reason for not consulting anyone about it was that “it was not a weighty consideration” (59.2%) and “there was no problem even if it was used” (27.7%). On the other hand, about 10% of patients answered that “it was not possible to consult anyone because the doctor and nurse seemed to be busy” or “fear of the deterioration of the interpersonal relationship with the doctor or nurse” (Table 11).

Discussion

The prevalence of CAM use was 37.8%, and the experience rate of use was 65.9%. These rates almost corresponded to previous studies that reported about diabetic and atopic dermatitis patients in Japan (50–70%),^{2–5} and about CAM by patients in liver disease clinics in the USA (41%).⁷

The factors relating to CAM use were “marriage”, “interferon therapy”, “subjective symptoms”, and “recognition of severity”. However, the phi coefficient meant that the strength of the relationship was low. We tried binary logistic analysis by using the items from Table 1 and Table 2. However, the coefficients of determination R^2 were extremely low 0.08–0.10. This shows that this model is inappropriate to analyze the determinants of CAM use. 36.5% of patients used “turmeric”. Turmeric is known as an effective food in liver disease,^{8–9} and it is sold widely in Japan. In Gunma Prefecture where was this study performed, agriculture and kitchen gardens are widespread, so

Table 7 Relationship between factors relating to the patient and the monthly cost of CAM

n = 153

	Item		n	Mean	SD	Mean rank	Mann-Whitney's U
Age	<65		55	¥12,761	± 15,996	83.2	2083*
	> 65		98	¥8,750	± 13,362	65.9	
Sex	Man		75	¥11,100	± 14,431	73.8	2688
	Woman		78	¥11,530	± 15,958	80.0	
Types of liver disease	Hepatitis B	No	140	¥11,105	± 14,969	76.5	838.5
		Yes	13	¥13,631	± 17,811	82.5	
	Hepatitis C	No	53	¥9,197	± 14,734	63.8	1948**
		Yes	100	¥12,444	± 15,366	84.0	
	Cirrhosis	No	133	¥12,027	± 15,486	80.4	874.5*
		Yes	20	¥6,613	± 12,270	54.2	
	Liver cancer	No	135	¥11,239	± 15,195	77.1	1195.5
		Yes	18	¥11,922	± 15,494	75.9	
Treatment	Injections ex. Glycyrrhizin	No	65	¥10,800	± 14,447	75.8	2781.0
		Yes	88	¥11,703	± 15,771	77.9	
	Interferon	No	106	¥10,447	± 13,560	75.0	2278.0
		Yes	47	¥13,286	± 18,332	81.5	
	Operation	No	141	¥11,134	± 15,374	75.3	601.0
		Yes	12	¥13,497	± 13,062	97.4	
Recognition of severity	Getting well	No	131	¥10,984	± 15,032	76.1	1324.0
		Yes	22	¥13,316	± 16,257	82.3	
	Persists for life	No	119	¥12,147	± 16,595	77.4	1975
		Yes	34	¥8,424	± 8,102	75.6	
	Lethal disease	No	58	¥10,196	± 11,924	78.1	2693.5
		Yes	95	¥12,005	± 16,887	76.4	
Occupational category	Full time job	No	96	¥10,261	± 14,875	73.5	2399.5
		Yes	57	¥13,102	± 15,651	82.9	
Purpose of using CAM	Health promotion	No	81	¥12,243	± 15,433	78.9	2761
		Yes	72	¥10,280	± 14,931	74.9	
	Radical cure of the disease	No	94	¥7,880	± 9,810	69.7	2088.5*
		Yes	59	¥16,798	± 19,998	88.6	
	Prevention of deterioration	No	99	¥9,952	± 13,383	74.6	2436
		Yes	54	¥13,825	± 17,884	81.4	
	Mere consolation	No	126	¥11,497	± 15,030	78.6	1500
		Yes	27	¥10,489	± 16,134	69.6	
	To "catch at straws"	No	124	¥9,698	± 13,350	71.6	1129**
		Yes	29	¥18,250	± 20,168	100.1	
	Improvement subjective symptoms	No	124	¥10,300	± 13,961	73.5	1359*
		Yes	29	¥15,679	± 19,249	92.1	

*p<0.05, **p<0.01

Table 8 Monthly cost of each CAM[#]

Category	n	Min (¥)	Max (¥)	Mean (¥)	± SD
Turmeric	69	100	20,000	1,851	± 2,660
"Nikko maple"*	27	300	12,000	2,167	± 2,325
Chlorella	41	300	50,000	10,511	± 12,327
Propolis	38	1,000	60,000	10,175	± 12,794
Various tea**	19	200	5,000	986	± 1,056
Honey	21	300	10,000	1,957	± 2,195
Corbicula extract	22	370	7,800	2,449	± 1,967
Vitamin tablet	19	800	20,000	5,958	± 5,657
Silky fowl's egg	18	500	6,000	2,033	± 1,297
Royal jelly	27	1,000	30,000	7,887	± 7,305
Chinese medicine	28	300	600,000	40,879	± 113,417
Ginseng	9	2,000	80,000	21,111	± 28,868

[#] The cost was calculated excluding subjects who did not answer and who had answered free of charge.

¥1,000 ≅ US\$9 (Sep. 2004.)

**"Nikko Maple": (*Acer maximowiczianum* Miquel)

**Liquid extracted from various plant species with hot water

Table 9 Difficulty in using CAM

n=267

		n		%
		No	Yes	
Experienced	difficulty	163	104	61.0
Difficulty in use				
Expense		70		26.2
Pain or bad taste in use		21		7.9
Deterioration of physical condition		7		2.6
Deterioration of interpersonal relationship		3		1.1
Miscellaneous		19		7.1

Table 10 Consultation with doctor or nurse

n=267

Consultation situation	n	%
Consulted	44	16.5
Didn't consult	184	68.9
Non-responding	39	14.6

Table 12 Herbal products with danger of liver injury

Herb	Type of liver injury
Pirorigejin'alcaroid	Veno-occlusive disease of the liver
Crotalaria	
Gordolobo herb tea	
Heliotropium	
Mate Tea	
Senecio aureus	
Symphtum officinale	
Teucrium chamaedrys (Germander)	Liver zonal necrosis (zone3) and cirrhosis
Hedeoma pulegioides	Liver zonal necrosis (zone3) and microvesicular strictures
Jin Bu Huan	Acute hepatitis and microvesicylar stricture
Chinese medicine	Acute hepatitis
Kava	Acute hepatitis
Kombucha mushroom *	Acute hepatic cell injury
Valeriana officianalis (Valerian)	Hepatitis
Viscum album (mistletoe)	Chronic hepatitis
Azadirachza indica (Margosa oil) (Neem)	Microvesicular stricture
Atractylis gummifera L	Hepatocellular hepatitis
Callilepis laureola	Lethal hepatitis
Larrea tridentata (Chaparral, creosote bush, grease wood)	Liver zonal necrosis (zone3), fulminant hepatitis and cirrhosis
Cassia angustifolia (Senna)	Hepatitis
Scutellaria (skullcap)	Acute hepatitis
Mentha pulegium	Potential hepatotoxicity
Berberis vulgaris	Potential hepatotoxicity
Sassafras albidum (Sassafras)	Hepatocarcinogenic effect in animals

Reference

Seeff L, Lindsay K, Bacon B, Kresina T, Hoofnagle J. (2001) *Complementary and alternative medicine in chronic liver disease. Hepatology* 34 (3): 595-603.

Larrey D. (1997) *Hepatotoxicity of herbal remedies. J Hepatol* 26 (Suppl. 1): 47-51.

* In the animal experiment in recent years, the toxicity of kombucha mushroom is denied. However, it is necessary to note it because the danger of the saprophytic bacteria mixing by an improper culture is pointed out.

many patients grew turmeric themselves. Therefore, the usage rate of turmeric may be higher than in other prefectures.

The subjective evaluation of "effective" was only 10-30% for each CAM. This was suggested that there was no extremely effective CAM. Some patients, one user each of "nikko maple" and "Chinese medicine" and two users each of "chlorella" and "propolis", answered that their disease had deteriorated. The

Table 11 Reasons why they did not consult a doctor or nurse

n=267

Reasons	n	%
It was not a weighty consideration	109	59.2
There was no problem even if it was used	51	27.7
It was not possible to consult anyone because the doctor and nurse seemed to be busy	20	10.9
Fear of the deterioration of the interpersonal relationship with the doctor or nurse	13	7.1
It seemed that discontinuance was ordered by the doctor	6	3.3
Miscellaneous	20	10.9

symptoms of the deteriorated patients were cold and elevation of liver functional parameters. This suggested a need to verify the relation between CAM and physical deterioration objectively.

The main purpose of CAM was "health promotion" and "radical cure of the disease". C. Carlsson reported in a prospective study in Sweden that abnormal liver functional parameters in individuals taking herbal remedies were high. It was also reported that

abnormal liver functional parameters decreased in individuals who stopped taking herbal remedies.¹⁰ Several cases of fatal fulminant hepatitis were also reported in patients using Chinese medicine or herbal medicine.¹¹ The relation between Chinese medicine and nephropathy was noted in other studies.¹²⁻¹⁴ In addition, there were reports that a certain kind of herb and Chinese medicine caused Stevens-Johnson syndrome¹⁵⁻¹⁶. Patients using Chinese medicine or herbal medicine as CAM should take especial note. CAM aiming at “promotion of health” must not cause a health hazard. Therefore, discontinuance may have to be recommended to patients using CAM for vague purposes such as “promotion of health”. It seems that the chance of side effects can be decreased, if CAM is used by only patients with a clear purpose such as “radical cure of the disease” and “prevention of deterioration” and only when standard treatment is invalid. And, if doctors or nurses counseled the patients, CAM may not be used so much. We take a neutral standpoint toward CAM for patients with liver disease. However, it is important to defend the patient from the side effects of CAM. Therefore, we strongly recommend patients to use Chinese medicine or herbal medicine more carefully.

The chance of began to use CAM were friend's and family's recommendations and other patient's recommendations. It is thought that a patient's friends and family wish the patient recover and recommend CAM. However, they may not be paying attention to the side effects of CAM. In the previous studies, it was noted that many people believed that herbal medicines were completely innocuous in contrast to traditional drugs.^{7,11} Therefore a patient's family and friends should pay attention to the risks before recommending CAM.

The average cost of CAM per month was ¥11,319 (SD±15,180), and the differences were large. The cost of CAM was particularly high in patients with hepatitis C or 64 years or less. The social factors of income etc. that were not examined in this study may explain why the cost of CAM a month is related to the patient's age.

The maximum difficulty in using CAM was “expense”. Doctors and nurses should advise patients of the effectiveness of CAM based on changes in liver functional parameters before and after using it so that patients can save money. In the relationship between the cost and the subjective evaluation of effect, both were high for “Chinese medicine” and “ginseng”, on the other hand, the evaluation of effect was high and the cost was cheap for “vitamin tablets”. This suggests that vitamin tablets are cost-effective.

Most patients did not consult a doctor or nurse

about using CAM because they felt no need for the consultation. On the other hand, about 10% of patients was answered “it was not possible to consult anyone because the doctor and nurse seemed to be busy” or “fear of the deterioration of the interpersonal relationship with the doctor or nurse”. These results showed that some patients couldn't consult anyone about it although they wanted to. Hepatotoxicity was reported among some medical herbs and Chinese medicines (Table 12), and some deaths due to fulminant hepatitis were reported. However, many patients think there are no side effects of CAM with natural ingredients. Patients should be informed that CAM used for the improvement of liver disease could cause lethal side effects. Patients should also report all CAM that they are using to their doctors. CAM seems to give patients charms such as “health promotion” and “radical cure of the disease”. However, on the other hand, problems like side effects and expense also develop. The following points are important to use CAM well and safely.

Patients should: 1) clarify the objective of CAM. 2) pay attention to indices such as changes in subjective symptoms and liver functional parameters, to evaluate the effects of CAM. 3) confirm that a standard medicine is invalid, before using CAM. 4) consult the doctor for the observation of side effects and the evaluation of effects.

We also propose the following guidelines for safe and satisfactory use of CAM.

[Guidelines for safe and satisfactory use of CAM]

Essential points :

1. Patients should bring the CAM product and consult the doctor for the prevention and early stage detection of side effects.
2. The doctor should always ask the patient about CAM in a non-critical way.
3. When symptoms develop such as fatigue, jaundice, anorexia, hematuria, fever, cough, breathing difficulties, itchiness of the skin, and eczema, which are symptoms of fulminant hepatitis, nephropathy, and Stevens-Johnson syndrome, patients must stop using CAM and consult a doctor at once.
4. The doctor and the nurse should regularly confirm the information on the side effects of CAM.

Recommended points :

1. Patients should confirm that a standard medicine is invalid, before using CAM.
2. Patients should avoid the use of medical herbs and Chinese medicines with which a danger of the liver injury was reported.
3. Products with unknown components and manu-

facturer should not be used.

4. Pay attention to indices such as changes in subjective symptoms and liver functional parameters, to evaluate the effect of CAM and avoid side effects.
5. Whenever a new CAM is taken, the blood count and a biochemistry blood test should be evaluated for 2-3 months about every two weeks, to observe the effects and side effects.

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