

Successful Treatment of Two Patients with Alcoholic Liver Disease Using Herbal Decoction: Case Report

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Objectives: This case report is presented to introduce the effectiveness of herbal decoction on patients with alcoholic liver disease.

Methods: We closely observed two patients who were admitted in the Department of Internal Medicine Department 1 of Kyung Hee Oriental Medicine Hospital due to alcoholic liver disease. We gave herbal decoction to these patients and then analyzed the changes in their general conditions as well as blood test results.

Results and Conclusions: The treatments with herbal decoctions *Cheongganhaeju-tang* and *Injincheonggan-tang* were helpful for ALD patients.

Conclusions: To provide more qualified medical service in the TKMH, they will be required to increase the proportion of non medical doctor employees, like Western medicine counterparts.

Key Words : Results and Conclusions: The treatments with herbal decoctions *Cheongganhaeju-tang* and *Injincheonggan-tang* were helpful for ALD patients.

Introduction

Alcoholic liver disease(ALD) can range broadly from asymptomatic fatty liver to severe liver cirrhosis. Fatty liver means that there is more than 5% of fat in one's liver. It might be caused by exorbitant alcohol intake or excessive food supply accompanied with abnormal metabolic syndrome such as diabetes mellitus. However, once ALD progresses to liver cirrhosis, the patient might suffer from diverse complications such as ascites, edema, jaundice, or coagulation malfunction. The threshold for developing alcoholic liver disease in men is over 60-80 g/d of alcohol intake for 10 years, while women are at increased risk for developing similar

degrees of liver injury by consuming only 20-40 g/d. Ingestion of 160 g/d is associated with a 25-fold increased risk of developing alcoholic cirrhosis¹⁾.

In 2010, the National Statistical Office reported the mortality rate of 2009 by ALD per 100,000 was 8.9²⁾. In 2009, the National Health Insurance Corporation reported that among patients who visited hospitals for alcoholic liver disease, 27.8% were in their forties and 27.9% in their fifties³⁾. This suggests that over half of people exposed to alcoholic liver disease are middle aged. Last year, the Korea Liver Association announced that over 40% of office workers in their forties and fifties had fatty liver compared with only 10% 20 years ago. This probably has a strong relationship with alcohol consumption,

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which has constantly increased since the late 1990s⁴⁾.

Treatment of alcoholic liver disease includes absolute abstinence from drink and sufficient nutrient supply⁵⁾. In addition to the ordinary therapy, Korean herbal medicine is also effective in treating these patients. Now we report 2 patients who showed improvement during their hospitalization. Both patients were diagnosed by medical history, questionnaire, ultrasonography, and blood tests. Liver biopsy was not carried out because we were confident their laboratory features were clear enough to diagnose ALD¹⁾.

Case Presentation

1. Case 1

- 1) Name: Kyung ○○ M/61
- 2) O/S: Rem-2000
Rec-2011. 12.19
- 3) C/C: ① General weakness
② Anorexia
③ Both hand tremor
- 4) P/H: BPH (2000. Dx.)
Cecectomy (2003. Op.)
Herniolarotomy (2010. Op.)
- 5) F/H: father deceased d/t CVA

6) P/I: In 2000, a 61 year-old man visited Kyung Hee University Oriental Medicine Hospital(KOMH) Internal Medicine Department 1 OPD due to his abnormal LFT results caused by his severe drinking habit. He was treated with acupuncture and herbal medicine but failed to stop drinking alcohol and also quit treatment.

He had been drinking several bottles of alcohol (*makgeolli*, raw rice wine) per day since his twenties. Since October 2011, what he had consumed was only 4-5 bottles of alcohol(over 120 g/d) without any oral nutrition intake, showing signs of severe anorexia.

Furthermore he could not distinguish between day and night and showed mild tremor in both hands. He visited KOMH Internal Medicine Department 1 OPD to check how severely his liver was damaged and to get treatment for the condition.

7) Test results

(1) Abdominal sonography (2011. 12. 22):

Fatty liver. Sonoscopic both renal cysts.



- (2) HBsAg/HBsAb: -/ +
- (3) Anti-HCV: -
- (4) CBC & DC. U/A: W.N.L

8) Treatment

- (1) *Cheongganhaeju-tang*(CGHJT, 清肝解酒湯) 2ch#3(Table 1)
- (2) Acupuncture: both Kokchi(LI11, 曲池), Hapkok(LI4, 合谷), Chok-samni(ST36, 足三里), T'aech'ung(LR3, 太衝) qd

(9) Lapse(Table 2. Fig. 1)

- (1) Duration of Adm.: 2011. 12. 22. ~ 2012. 1. 4.

Table 1. Prescription of CGHGT

Herb	Scientific name	Dose(g)
<i>Injinho</i> (茵陳蒿)	<i>Artemisiae Capillaris Herba</i>	20
<i>Galgeun</i> (葛根)	<i>Puerariae Radix</i>	15
<i>Jeokyang</i> (赤楊)	<i>Alnus Japonica</i>	12
<i>Jinpi</i> (陳皮)	<i>Citri Unshii Pericarpium</i>	12
<i>Baekchul</i> (白朮)	<i>Atractylodis Rhizoma Alba</i>	8
<i>Taeksa</i> (澤瀉)	<i>Alismatis Rhizoma</i>	8
<i>Baekbokryung</i> (白茯苓)	<i>Hoelen</i>	8
<i>Hubak</i> (厚朴)	<i>Magnoliae Cortex</i>	8
<i>Sain</i> (砂仁)	<i>Amomi Fructus</i>	6
<i>Chodugu</i> (草豆蔻)	<i>Alpiniae Katsumadaii Semen</i>	6
<i>Gamcho</i> (甘草)	<i>Glycyrrhizae Radix</i>	6

Table 2. Changes of Laboratory Data in Case 1

	unit	2011.12.19	2011.12.22	2011.12.25	2011.12.27	2011.12.31	2012.01.04
Total bilirubin	mg/dL	0.51	1.06	0.55			0.49
Direct bilirubin	mg/dL		0.40	0.24			0.16
ALP	U/L	131	147	119	101	81	84
GGT	U/L		826	795	644	491	464
AST	U/L	756	518	122	105	58	57
ALT	U/L	186	191	147	192	145	134
Ammonia	ug/dL		175	110	126	46	55

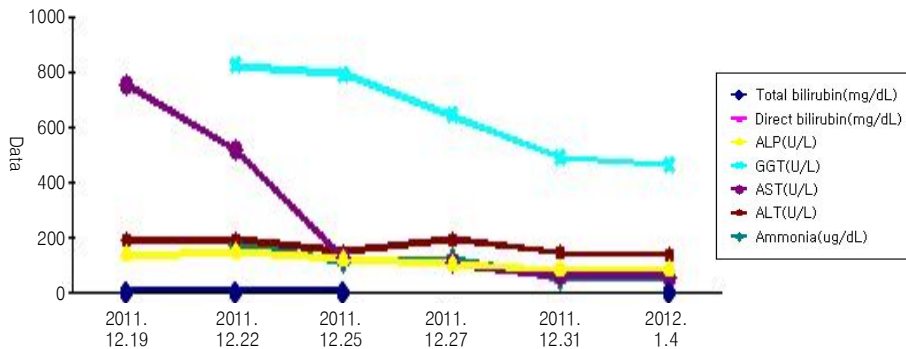


Fig. 1. Case 1: Changes of serum biochemistry

(2) Laboratory data

2. Case 2

- 1) Name: Kim ○○ M/75
- 2) O/S: Rem- 2000
Rec- 1 month ago

- 3) C/C: ① ② Mild anorexia

- 4) P/H: HTN 2006. Dx. HIVD 2005. Op.

- 5) F/H: N.S

- 6) P/I: A 75-year-old man, 165cm, 70kg, visited KKMH Internal Medicine Department 1 OPD presenting ascites. He had already visited this center in 2000 to

treat his alcoholic liver cirrhosis. At that time, he was able to adjust his abdomen circumference to normal boundaries just by taking herbal medicine and quitting alcohol. However soon after, he started drinking 2 bottles of *soju*(140 g/d) every day working in the field. One month before admission, not only was he drinking 2 bottles of *soju* every day but was also suffering from anorexia and uncomfortable feelings from ascites. On 2012. 1. 22 he visited a local hospital and was recommended to seek more specialized treatment with close examinations which led him to visit this hospital again on 2012. 2. 3.

7) Test results

- (1) Abdominal sonography (2012.02.03) : Liver cirrhosis. Right hepatic calcification. Ascites.



- (2) HBsAg/HBsAb: -/ -
- (3) Anti-HCV: -
- (4) CBC & DC. U/A: W.N.L

8) Treatment

- (1) *InJinCheonggan-tang*(IJCGT, 茵陳清肝湯 1ch #3) (Table 3)
- (2) Acupuncture: both Kokchi(LI11, 曲池), Hapkok(LI4, 合谷), Chok-samni(ST36, 足三里), Taech'ung (LR3, 太衝) qd

9) Lapse

- (1) Duration of Adm.: 2012. 2. 3 ~ 2012. 2. 17
- (2) Laboratory data(Table 4, Fig. 2)

Treatment results

The first step in diagnosing ALD is a detailed history taking. There are questions which should be included when a doctor interviews an ALD patient: pattern of alcohol consumption, the type & amount of alcohol ingested, the age at which the patient started drinking and the date of the last drink⁶⁾. The next step would be to confirm alcoholism, using screening tools such as CAGE(Cut down, Annoyed, Guilty, and Eye opener), MAST (Michigan Alcoholism Screening Test)⁷⁾, and AUDIT(Alcohol Use Disorders Identification Test)⁸⁾. In this study, AUDIT was used in the first case, and CAGE in the second.

The first patient had taken 2000cc of *makgeolli* every day for over 40 years, which was accounted as 120 g/day of alcohol. His AUDIT scored 32 points, a score which translates to immediate need of hospital care. The second patient had taken 2 bottles of *soju* every day for over 30 years which was accounted as 140 g/day of alcohol. We applied the CAGE criteria to which the patient answered positive to two of the questions, implying a tendency of ALD just like the other patient⁹⁾.

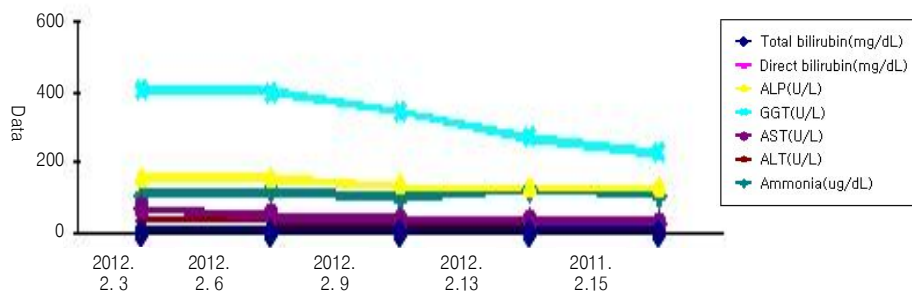
In the first case when the patient first visited the hospital, his mental state was alert but showed mild cognitive disorder such as having difficulty in distinguishing day from night. We considered that he was suffering from one of the withdrawal symptoms

Table 3. Prescription of *IJCGT*

Herb	Scientific name	Dose(g)
<i>Injinho</i> (茵陳蒿)	<i>Artemisiae Capillaris Herba</i>	50
<i>Taeksa</i> (澤瀉)	<i>Alismatis Rhizoma</i>	20
<i>Galgeun</i> (葛根)	<i>Puerariae Radix</i>	20
<i>Jiyu</i> (地榆)	<i>Sanguisorbae Radix</i>	15
<i>Baekchul</i> (白朮)	<i>Atractylodis Rhizoma Alba</i>	12
<i>Baekbokryung</i> (白茯苓)	Hoelen	12
<i>Jeoryung</i> (豬苓)	<i>Drabae Semen</i>	12
<i>Bokbunja</i> (覆盆子)	<i>Rubi Fructus</i>	12
<i>Saenggang</i> (生薑)	<i>Zingiberis Rhizoma Crudus</i>	12
<i>Gamcho</i> (甘草)	<i>Glycyrrhizae Radix</i>	10
<i>Rabokja</i> (蘿卜子)	<i>Raphani Semen</i>	8
<i>Cheonpi</i> (青皮)	<i>Citrii Unshiu Immaturi Pericarpium</i>	5
<i>Binrang</i> (檳榔)	<i>Arecae Semen</i>	6
<i>Daewhang</i> (大黃)	<i>Rhei Rhizoma</i>	4
<i>Pyunchuk</i> (篇蓄)	<i>Polygoni Avicularis Herba</i>	4
<i>Chija</i> (梔子)	<i>Gardeniae Fructus</i>	4
<i>Chajeonja</i> (車前子)	<i>Plantaginis Semen</i>	4
<i>Moktong</i> (木通)	<i>Akebiae Caulis</i>	4
<i>Deungsimcho</i> (燈心草)	<i>Junci Medulla</i>	4
<i>Gumaek</i> (瞿麥)	<i>Dianthi Herba</i>	4
<i>Whalseok</i> (滑石)	<i>Talcum</i>	4

Table 4. Changes of Laboratory Data in Case 2

	unit	2012.02.03	2012.02.06	2012.02.09	2012.02.13	2012.02.15
Total bilirubin	mg/dL	1.44	1.33	1.56	1.41	1.01
Direct bilirubin	mg/dL	0.91	0.82	0.93	0.87	0.66
ALP	U/L	153	152	133	124	123
GGT	U/L	409	402	346	272	229
AST	U/L	70	51	38	35	28
ALT	U/L	38	35	30	28	21
Ammonia	ug/dL	111	120	100	128	109

**Fig. 2.** Case 2: Changes of Serum Biochemistry

which usually peak 24 hours after the last drink, since it disappeared 2 days after admission. The patient's skin was clammy, face red and there was a mild tremor in the jaw causing discomfort during speech. The nose showed rhinophyma and the sclera was not purely white with several capillaries. The tongue was coated with white fur and was shrunken but the patient could not drink much water due to nausea. The patient was also unable to sleep without alcohol and was suffering from a sleep disorder. His abdominal wall showed a little tension implying epigastric discomfort. He had a urination frequency of 4~5 times a night and his stool was usually soft. According to his upper abdominal ultrasonography, he had fatty liver and both renal cysts with normal kidney profile. His lung showed no abnormal signs in image and his ECG test result was normal as well.

After admission, we gave him *CGHJT* 3 times a day, which was divided 2 ch into 3 packs, served a high-protein diet, checked his general condition every day and examined liver function through blood tests 2~3 times a week.

His liver function tests showed great improvement by the time he was allowed to be discharged. AST(U/L) levels dropped from 753 to 57, ALT(U/L) from 191 to 134, ALP(U/L) from 147 to 84, and GGT(U/L) from 826 to 464. His general condition also improved. He could speak clearly without shaking his jaw and showed no cognitive disorder. His face and nose became less reddish. On arrival the patient had severe anorexia but 3 days after admission he could eat over half his meal and by the time he was discharged he did not complain about his digestion and ate most of his meal.

In the second case, the patient had already been told that he had liver cirrhosis in 2000 and was recommended to observe the condition closely a month before he came here. His mental state was alert, showing clear perception. We could not find any abnormal signs in his skin such as subcutaneous

bleeding, spiderangiomas, palmar erythema or gynecomastia. His face was red and sclera was a little yellowish with no capillaries. The tongue was coated with yellow fur on the base of beefy sign with no thirst. He had ascites but did not feel uncomfortable. The patient had a normal bowel habit but complained about hypouresis of only 100cc at a time. According to his upper abdomen ultrasonography, he had liver cirrhosis with right hepatic calcification and ascites. There were no abnormal signs in kidney and spleen and his lung showed no abnormality either. He also had hypertension which he had been controlling with pills like Atenolol 50mg qd and hydrochlorothiazide 25mg qd.

After admission, we gave him *IJCGT* 3 times a day, which was divided 1 ch into 3 packs. We also added some herbs from *Paljung-san*(八正散) like *Moktong*(木通), *Taeksa*(澤瀉), *Deungsimcho*(燈心草), *Gumaek*(瞿麥), *Pyunchuk*(篇蓄), *Whalseok*(滑石), and *Chajeonja*(車前子) to increase urine output, and *Galgeun*(葛根) to get rid of alcohol damage. We provided him with a general diet adjusted to ascites, checked his general condition including abdomen circumference and intake-output balance, and examined liver function through blood tests 2~3 times a week.

His blood test results improved to the extent that we could allow him to be discharged. AST(U/L) levels dropped from 70 to 28, ALT(U/L) from 38 to 21, ALP(U/L) from 153 to 123, GGT(U/L) from 409 to 229 and total bilirubin(mg/dL) from 1.41 to 1.01. During hospitalization, the patient's intake-output balance was well sustained. However, urine volume per time showed only slight improvement. Only 3 times, it checked up to 200cc and most of the times it checked between 100 and 150cc. His abdomen circumference seemed to fluctuate during hospitalization but after all, it turned out that it only decreased one inch at 3 cm above umbilicus, which is where the abdomen is most bulged.

Discussion

The pathogenesis of liver disease associated with alcohol ingestion is not understood completely. What we know is that some people who chronically abuse alcohol develop liver disease, primarily because the liver metabolizes the majority of ingested ethanol¹⁰. Furthermore, ethanol metabolism is required for hepatic injury to occur, although variations in ethanol metabolism do not completely explain the variable susceptibility to alcoholic liver disease. Ethanol is metabolized via several pathways, which can lead to liver toxicity. The primary hepatic pathway generates acetaldehyde and reduces NAD. Several factors contribute to the development of alcoholic fatty liver including reduced oxidation of hepatic fatty acids and increased lipogenesis, but not all patients with steatosis develop steatohepatitis¹¹.

The American Association for the Study of Liver Disease established guidelines for the long-term management of alcoholic liver disease in 2009¹². The guidelines emphasize strict abstinence and possible use of pharmacologic therapy with counseling to prevent relapse. It also suggested multiple feedings, including breakfast and a nighttime snack, with a regular oral diet at higher-than-usual dietary intake (1.2 to 1.5 g/kg for protein and 35 to 40kcal/kg for energy). Standard vitamin supplementation according to the recommended daily allowances is recommended, especially for thiamine and vitamin B¹³. Other possible medical therapies include propylthiouracil, polyunsaturated lecithins, s-adenosylmethionine, metadoxine, n-acetylcysteine and silymarin.

Unlike western medicine, there is no specific term or definition that refers to the current understanding of liver disease in Korean medicine. However, the clinical features of liver disease like hepatitis or liver cirrhosis share similarities with jaundice, liver stagnation, hypochondria pain, abdominal distention, abdominal mass and alcohol intoxication¹⁴.

According to Korean medicine, alcoholic liver

disease is caused by the property of alcohol that usually makes one's body humid and warm easily. This retention of dampness and heat causes stagnation of Liver *qi*(肝氣鬱結) which then damages the Liver and Gall bladder. There are several medical practitioners who have already written about this mechanism. Among those *Jangjungkyung*(張仲景), who authored 'Treatise on Cold-induced Diseases (傷寒論)', divided jaundice into five categories based on the causes and one of them was alcohol. He also introduced *Injinho-tang*(茵陳蒿湯) and *Injinoryung-san*(茵陳五苓散) which became the basic decoction to relieve liver damage¹⁵.

We prescribed *CGHJT* to the first case and *IJCGT* to the second. We used different decoctions because they each had distinct features. According to Judankye, who wrote the famous '*Dankyesimbub*(丹溪心法)', in the early stages alcoholic damage will present with just vomiting, nausea, hammer nose and frequent diarrhea. But as time passes by, the symptoms can evolve to diabetes mellitus, jaundice, lung damage, hemorrhoid, abdominal distention, blindness, asthma or tremor¹⁴. These symptoms resemble those of alcoholic liver cirrhosis with ascites. The first patient had symptoms like anorexia, general weakness and nausea as he suffered from alcoholic hepatitis while the second patient had ascites and abdominal fullness since his illness had progressed to alcoholic liver cirrhosis.

CGHJT is a representative decoction to relieve alcohol intoxication. It contains *Daegumeumja*(對金飮子) which clears away the evil damp-heat(濕熱) in the body, *Injinsaryung-san*(茵陳四苓散) which also removes dampness(濕痰) by increasing urine output and *Galgeun*(葛根) with *Jeokyang*(赤楊) which detoxifies the alcohol injury¹⁶. *IJCGT* also contains *IJSRS* as well as *Jiyu*(地榆) and *Bokbunja*(覆盆子) which can ease the burden of increased bleeding tendency¹⁷.

There are several reports that have shown the effectiveness of these prescriptions in protecting the

liver from damage. Lee¹⁶⁾ suggested that *CGHJT* might block TGF- β stimulation of fibroblast cell proliferation and fibrosis-related gene expression. Han¹⁸⁾ found that *CGHJT* activated NF κ B reducing inflammatory cytokine gene expression in experiment with ethanol induced liver cells. Yun¹⁹⁾ discovered that *CGHJT* increased glutathione synthesis to help the liver recover from alcohol-induced damage and Kim²⁰⁾ found out that *CGHJT* suppressed FasL/Fas-mediated apoptosis. Lee²¹⁾ analyzed the effect of *IJCGT* on interferon- α/β signal transmission system in HepG2 cells and Kim²²⁾ indicated that *IJCGT* reduced inflammatory cytokines like TNF- α , TGF- β 1, IL-1 β , IL-6, and IL-8 which were induced by ethanol, acetaldehyde and lipopolysaccharide in Kupffer cells.

Since there is limited chance to meet ALD patients, we can prove the effectiveness of herbal medicine only *in vivo* or *in vitro*. Thus we report here on ALD patients who visit KOMH to cure their abnormal body conditions. We have seen that herbal medicine can be a good remedy to these patients, even to those who have already developed liver cirrhosis. Not only did their general conditions improve but their laboratory results also got better. However, there are several limitations in this study that we should consider. We could not prove how these treatments are effective when compared with absolute abstinence from alcohol or with treatment by western medicine. There should be more efforts to overcome this barrier.

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