

Clinical Study on the efficacy of *Panax Ginseng* C. A. Meyer on Acute viral (B) Hepatitis - (II)*

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Abstract

It was attempted in the present study to determind the effect of Korean ginseng on acute viral (B type) hepatitis by double blind test clinically and the results were as follows.

1. The double blind test of 4 week period showed no statistical significance of the effect of ginseng on the disease.
2. The double blind test of 2 week period, however, showed a significant effect in such clinical symptoms as appetite, stomach ache, headache, chillness dizziness, nausea and vomitting, stool habit change and jaundice. Improvement of the blood serum level of transaminases, bilirubin. alkaline phosphatase and cholesterol Chillness feeding period was observed.

Introduction

Previously, we have made some clinical observations to see whether *Panax ginseng* would stimulate the recovery of the impaired liver function of the patients suffering from viral (B type) hepatitis through blood test and realized that the ginseng has some preventive effect against the development of the disease to be chronic by accelerating the liver function recovery of the patients.¹

In the present study, it was attempted to determine the efficacy of panax ginseng on viral (B type) hepatitis through clinical double blind test.

Materials and Methods

Among the patients of liver diseases admitted to Hanyang university hospital, Yongdeungpo City Hospital,

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Haesung Hospital, Ehwa Women University Hospital, Seoan Hospital, Handok Hospital and Haecheon Hospital, patients of acute viral (B-type) hepatitis were selected based on clinical features, pathological tests and radioimmuno-assay

The patients were divided into two groups. half of the patients of 1st group were fed first 4 weeks with red ginseng powder (KRG, 4.5g/day) and then with of the same amounts of corn powder (treatment 1), as placebo for the same period of time. The other half were fed first with placebo followed by ginseng (treatment 2), as shown in Fig. 1. 2nd group was treated similarly but two week period of feeding exchange instead of four weeks

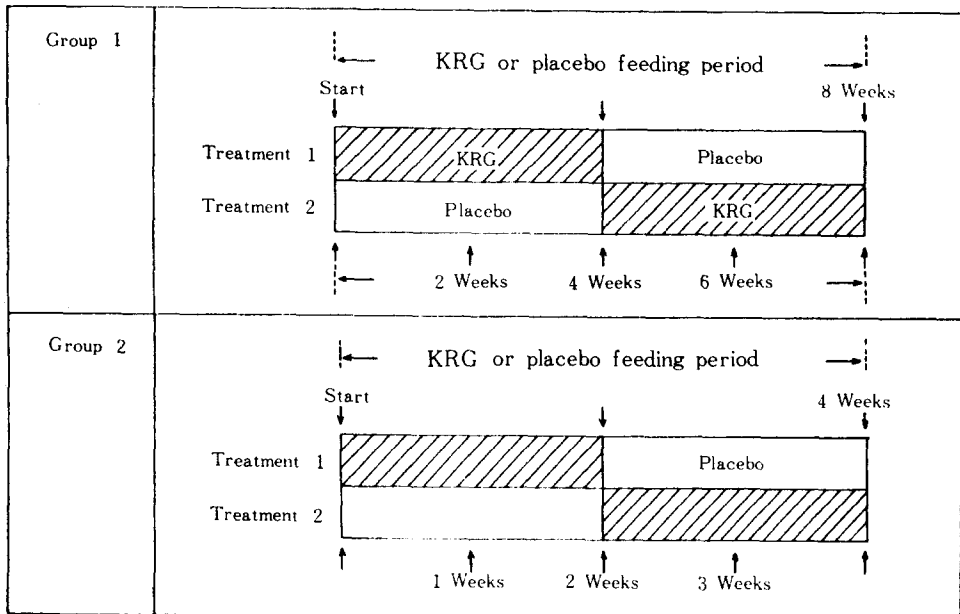


Fig. 1. Schedule of the experiment

Clinical observation was made periodically. It included fatigue, appetite, digestive condition, headache, stomach pain, back pain, insomnia, anxiety chillness, paltitation, dyspnea, dizziness, nausea and vomitting, stool habit change and jaundice. Each symptom was classified 7 levels and the improving was estimated numerary such as that the improvement of more than 2 levels was counted being effective and that of less than one level was counted ineffective.

The blood tests were done. It included protein (total, albumin and globulin) measurement,² thymol turbidity test,³ bilirubin (total and conjugated) measurement,⁴ cholesterol level determination⁵, transaminase (serum-GOT serum-GPT)⁶ and alkaline phosphatase activity measurement.⁷

Radioimmuno assay was made to distinguish B-type viral hepatitis using Abbott laboratory's AUSTRIAI-125 system (HBs-Ag) AUSA system (HBs-Ag) and CORAB system (HBc Ag).

Evaluation of the data was expressed statistically of the data using χ^2 test or student's *t* test.

Results and Discussion

Table 1. is a summary of the effect of ginseng on clinical symptoms of the patients during the treatments. In the case of 4 week test, treatment 1 showed a significant statistical improvement in such symptoms as fatigue, appetite, digestive condition, stomach ache, anxiety, palpitation, nausea and Vomiting stool habit change and jaundice but treatment 2 did not show any significant effect. In the latter treatment, however, the improvement of the symptoms of digestive organs as fatigue, appetite, digestive condition, stomach conditions was observed. Statistical evaluation of the total (treatment 1 and 2), however, showed no significant effect could be observed.

Table 1. Evaluation of the effect of Korean ginseng on viral hepatitis by double blind test (4 week test)

Effectiveness System	Treatment 1		Treatment 2		Treatment 1 & 2		P
	KRG (%)	Placebo (%)	KRG (%)	Placebo (%)	KRG (%)	Placebo (%)	
Fatigue	38	13	14	45	28	28	—
Appetite	45	13	4	26	27	20	> 0.05
Digestive condition	35	14	0	27	20	20	—
Headache	21	7	9	5	14	8	> 0.05
Stomach pain	34	0	0	23	19	9	> 0.05
Back pain	7	10	4	5	6	8	> 0.05
Insomnia	14	10	8	13	12	12	—
Anxiety	30	3	4	30	19	15	> 0.05
Chillness	0	0	3	0	6	0	> 0.05
Palpitation	17	0	0	5	10	2	> 0.05
Dyspnea	21	0	5	5	14	2	< 0.05
Dizziness	31	0	0	5	18	1	< 0.01
Nausea and Vomiting Stool habit change	24	0	23	14	24	6	< 0.05
Jaundice	17	0	14	14	16	6	> 0.05
	34	7	45	41	40	22	> 0.05

It seemed that the acute viral hepatitis could be recovered generally in a few weeks when an adequate treatment of the patient was made. Therefore the double blind test of a shorter period (2 weeks) was made for the 2nd group of patients suffering from acute viral (B type) hepatitis.

In this case, the treatment 1, showed the significant effect in such clinical symptom as fatigue, jaundice, and stomach appetite and headache but treatment 2 showed no significant effect except stomach ache.

The statistical assessment of the total (treatment 1 & 2) showed the effectiveness in appetite, digestive condition, stomach ache, headache, chillness, dizziness, nausea and vomiting stool habit change and jaundice.

The liver is intimately related with other organs and no single test or procedure which effectively measure the total function of the liver is not possible. Many liver function tests are based on a wide variety of

Table 2. Evaluation of the effect of Korean ginseng on viral hepatitis by double blind test (2 week test)

Effectiveness Systems	Treatment 1		Treatment 2		Treatment 1 & 2		P
	KRG (%)	Placebo (%)	KRG (%)	Placebo (%)	KRG (%)	Placebo (%)	
Fatigue	47	0	20	35	34	18	> 0.05
Appetite	45	10!	26	22	36	15	< 0.05
Digestive condition	37	0	20	20	28!	11	< 0.05
Headache	26	0	15	0	21	0	< 0.005
Stomach pain	32	0	15	5	23	3	< 0.01
Back pain	10	5	10	0	10	3	> 0.05
Insomnia	16	5	10	15	13	11	> 0.05
Anxiety	31	5	15	20	23	13	> 0.05
Chillness	16	0	15	0	15	0	< 0.05
Palpitation	12	0	0	5	6	3	> 0.05
Dyspnea	0	0	0	5	6	3	> 0.05
Dizziness	21	5	20	5	21	5	< 0.05
Nausea and vomitting	31	0	20	15	26	8	< 0.05
Stool habit change	21	0	20	14	20	3	< 0.025
Jaundice	63	11	40	45	51	28	< 0.025

Table 3. Variations of blood serum levels of total proteins (TP), albumins (A), globulins (G), Total bilirubin (TB) & direct bilirubin (DB), alkaline phosphatase (AP), glutamate oxaloacetate transaminase (GOT), & glutamate pyruvate transaminase (GPT), total cholesterol (TC) and thymol turbidity test (TTT) during the red ginseng and placebo feeding periods.

Blood serum Level	Treatment Week	Ginseng (4 weeks)			Placebo (4 weeks)	
		0 ⁺	2	4	6	8
TP (g/dl)		7.1 + 0.7	6.9 + 0.6	7.2 + 0.6	7.1 + 0.7	7.4 + 0.4
A (g/dl)		4.0 + 0.7	4.1 + 0.6	4.4 + 0.6	4.1 + 0.6	4.6 + 0.4
G (g/dl)		2.9 + 0.6	2.7 + 0.4	2.8 + 0.4	3.0 + 0.4	2.8 + 0.4
TB (mg/dl)		4.5 + 0.7	5.0 + 0.9	1.8 + 0.5	1.4 + 0.4	1.1 + 0.4
DB (mg/dl)		2.0 + 0.6	3.1 + 0.9	1.2 + 0.5	0.9 + 0.3	0.7 + 0.3
AP (K-A-U)		7.5 + 2.9	2.9 + 1.0	3.2 + 1.2	3.6 + 1.1	3.2 + 1.3
GOT (u)		281 + 325	214 + 192	64 + 42	49 + 18	36 + 15
GPT (u)		446 + 410	271 + 298	74 + 51	63 + 38	40 + 25
TC (mg/dl)		178 + 29	180 + 22	193 + 30	190 + 35	198 + 27
TTT (u)		5.0 + 1.8	2.8 + 2.0	2.0 + 0.7	2.1 + 0.8	1.9 + 0.7

The values are mean value ± standard deviation. (The first 4 week ginseng powder feeding followed by 4 week placebo feeding)

0: no significance, *: p < 0.05, **: p < 0.01, ***: p < 0.005, +⁰ Admission

biochemical reactions, such that the clinician can select combinations of tests that often measure different aspects of hepatic function.

As shown in Table 3, in the treatment 1 of 4 week test, both ginseng and placebo feeding showed a significant improvement of bilirubin and glutamate transaminase levels but TTT improvement was observed in the ginseng feeding period.

In the treatment 2 (Table 4), improvement of the blood serum level of glutamate transaminase, bilirubin, alkaline phosphatase and cholesterol in ginseng feeding period was made while only transaminase level was improved in the placebo feeding period.

Table 4. Variations of blood serum levels of total proteins (TP), albumins (A), globulins (G), total bilirubin (TB) & direct biliturin (DB), alkaline phosphatase (AP), glutamate oxaloacetate transmainase (GOT), & glutamate pyruvate transaminase (GPT), total cholesterol (TC) and placebo

Blood serum level	Treatment		Placebo (4 weeks)		Ginseng (4 weeks)	
	Week					
	0 ⁺		2	4	6	8
TP (g/dl)	9.0+1.5		8.2+1.3	7.8+1.4	6.5+2.4	6.5+1.4
A (g/dl)	5.6+0.4		5.6+0.6	5.0+1.0	4.6+2.2	4.3+1.3
G (g/dl)	3.6+0.2		3.0*+0.9	2.8+1.4	2.9+1.4	2.5+0.8
TB (mg/dl)	5.8+6.4		4.5+3.9	2.9+2.2	2.1+1.7	1.3+0.9
DB (mg/dl)	3.5+3.8		2.7+2.5	1.7+1.3	1.1+0.9	0.6+0.4
AP (K-A-U)	10.9+14.1		10.3+12.2	7.0+8.6	4.4+5.0	3.5+3.9
GOT (u)	431+344		246+194	196+110	97+63	53+27
GPT (u)	503+518		274+224	161+122	93+74	48+31
TC (mg/dl)	259+120		234+99	214+43	184+551	184+21
TTT (u)	6.4+3.1		4.7+2.6	4.3+1.9	3.0+1.0	2.0+0.1

The values are mean value \pm standard deviation. (The first 4 week placebo feeding by 4 week by placebo feeding).

0: no significance, *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.0005$, +: Admission

It appeared more clearly in 2 week test that in treatment 1 (Table 5), a significant improvement of bilirubin and serum glutamate transaminase levels during ginseng feeding period but not in placebo period. In treatment 2 (Table 6), a significant improvement of alkaline phosphatase and glutamate transaminase levels was observed during ginseng feeding period. As shown in Fig. 2, significant improvement of alkaline phosphatase and thymol turbidity test values was made during ginseng feeding period in 2 week test.

Table 7 showed the effect of ginseng on the patients of acute viral (B) hepatitis, tested by 2 week feeding exchange double blind test using blood value variation as parameters. In treatment, improvement of conjugated bilirubin, S-GOT, S-GPT, total cholesterol was made significantly ($p < 0.05$) but in treatment 2, no statistical significance of the blood value improvement was observed except total bilirubin value.

From the above results, Korean ginseng appeared to be effective on the improvement of impaired hepatic tissue of patients suffering from viral (B) hepatitis at the early phase of the disease.

Table 5. Variations of blood serum levels of total proteins (TP), albumins (A), globulins (G), total bilirubin (TB) & direct bilirubin (DB), alkaline phosphatase (AP), glutamate oxaloacetate transaminase (GOT), & glutamate pyruvate transaminase (GPT), total cholesterol (TC) and thymol turbidity test (TTT) during the red ginseng and placebo feeding periods.

Blood serum level	Treatment		Ginseng period (2 weeks)		Placebo period (2 weeks)	
	Week		1	2	3	4
	0 ⁺					
TP (g/dl)	7.0±1.4		7.6±1.6	7.1±1.1	7.2±1.6	6.8±1.0
A (g/dl)	4.2±1.0		5.0±0.9	4.3±0.7	4.5±0.9	4.3±0.6
G (g/dl)	2.8±0.6		3.2±1.2	2.7±0.8	2.7±1.0	2.5±0.6
TB (mg/dl)	6.5±5.3		4.0±2.2	1.8±1.3	1.5±1.1	1.1±0.7
DB (mg/dl)	5.3±4.5		3.0±1.5	1.1±1.0	1.1±0.8	0.7±0.5
AP (K-A-U))	10.9±8.4		7.6±7.4	6.6±5.6	5.1±3.9	5.9±3.6
GOT (u)	295±210		148±77	94±71	56±31	65±68
GPT (u)	275±220		147±75	72±55	38±19	53±62
TC (Mgl/dl)	174±59		199±19	161±31	156±29	155±29
TTT (u)	5.6±4.0		4.1±2.4	3.9±2.3	3.1±1.4	4.5±1.9

The values are mean value ± standard deviation. (The first 2 weeks' ginseng powder feeding followed by 2 weeks' placebo feeding.

0: no significance, *: p<0.05, **: p<0.01, ***: p<0.005, +: Admission

Table 6. Variations of blood serum levels of total proteins (TP) albumins (A), globulins (G), total bilirubin (TB) & direct bilirubin (DB), alkaline phosphatase (AP), & glutamate pyruvate transaminase (GPT), total cholesterol (TC) and placebo feeding periods.

Blood serum level	Treatment		Placebo period (2 weeks)		Ginseng period (2 weeks)	
	Week		1	2	3	4
	0 ⁺					
TP (g/dl)	7.1±0.6		6.9±0.7	6.8±0.5	6.9±0.5	6.7±0.6
A (g/dl)	4.2±0.6		4.1±0.6	4.0±0.8	4.2±0.5	3.9±0.6
G (g/dl)	2.9±0.5		2.8±0.5	2.8±0.6	2.7±0.4	2.6±0.5
TB (mg/dl)	5.8±4.8		2.8±2.6	2.4±2.2	1.8±1.2	1.9±1.3
DB (mg/dl)	4.2±3.7		1.9±2.0	1.7±1.8	1.5±1.0	1.1±0.5
AP (k-A-U)	10.4±7.6		10.1±2.0	9.9±2.5	5.9±1.1	5.1±1.4
GOT (u)	274±310		98±42	86±38	61±49	37±23
GPT (u)	320±370		128±58	74±49	50±13	36±12
TC (mg/dl)	180±29		182±37	169±19	170±21	171±18
TTT (u)	8.1±4.5		7.0±4.0	7.8±3.9	6.3±2.5	5.7±2.1

The values are mean value ± standard deviation. (The first 2 weeks' placebo feeding followed by 2 weeks' ginseng powder feeding)

0: nosignificance, *: p<0.05, **: p<0.01, ***: p<0.005 ±: Admission.

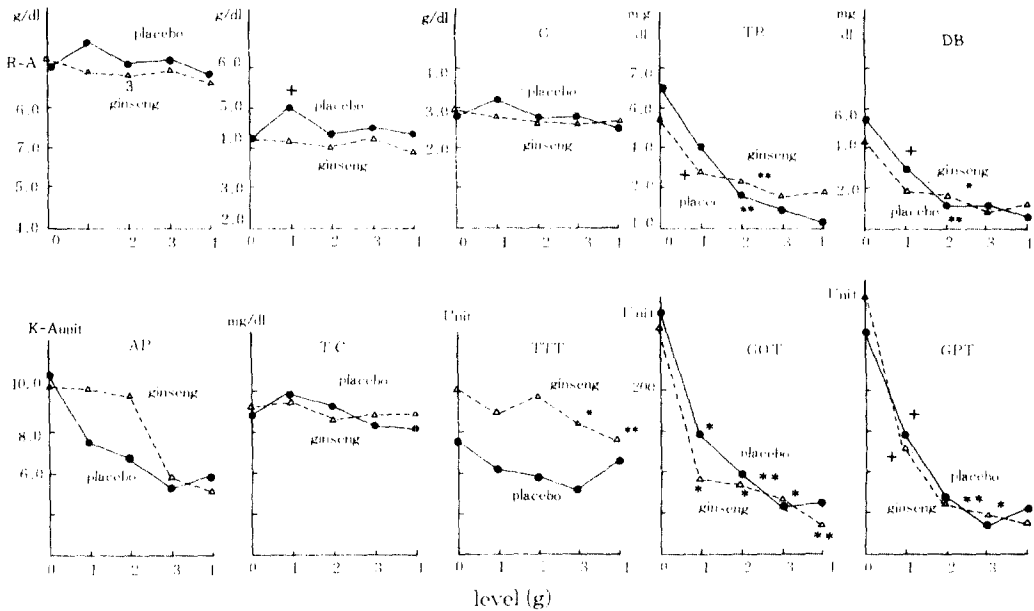


Fig. 1. Variations of blood serum levels of total proteins (TP), albumins (A), globulins (G), total bilirubin (TB) & direct bilirubin (DB), alkaline phosphatase (AP), glutamate oxaloacetate transaminase (GOT), & glutamate pyruvate transaminase (GPT), total cholesterol (TC) and thymol turbidity test (TTT) during in red ginseng and placebo feeding periods.

— Two weeks' ginseng feeding followed by 2 weeks' placebo feeding.
 - - - Two weeks' placebo feeding followed by 2 weeks' ginseng feeding
 + : $p < 0.05$, * : $p < 0.01$, ** : $p < 0.005$, † : feeding time (ginseng or placebo)

Table 7. The effectiveness of ginseng treatment on the patients (acute viral B type hepatitis) by double blind test in the change of the blood serum level of total proteins (TP) and albumins (A), globulins (G), total bilirubin (TB) & direct bilirubin (DB), alkaline phosphatase (AP), glutamate oxaloacetate transaminase (GOT) & glutamate pyruvate transaminase (GPT), total cholesterol (TC)

Group	1 (KRG 2 weeks- placebo 2 weeks)			2 (placebo 2 weeks-KRG 2 weeks)		
	KRG 2 weeks	Placebo 2 weeks	p	Placebo 2 weeks	KRG 2 weeks	p
TP (g/dl)	0.3 ± 0.8	0.6 ± 1.0	p > 0.05	1.5 ± 1.1	1.3 ± 1.2	p > 0.05
A (g/dl)	0.7 ± 0.5	0.7 ± 0.6	p > 0.05	0.9 ± 0.6	0.9 ± 0.8	p > 0.05
G (g/dl)	0.4 ± 0.3	0.5 ± 0.4	p > 0.05	0.8 ± 0.8	0.8 ± 0.7	p > 0.05
TB (mg/dl)	4.3 ± 4.7	1.4 ± 1.1	p > 0.05	0.8 ± 0.6	1.8 ± 1.5	p < 0.05
DB (mg/dl)	3.4 ± 4.0	0.8 ± 0.7	p < 0.05	1.1 ± 1.5	1.0 ± 0.8	p > 0.05
AP (K-A-U)	4.6 ± 4.8	2.1 ± 1.9	p > 0.05	4.5 ± 6.7	5.5 ± 9.5	p > 0.05
GOT (u)	153 ± 100	64 ± 67	p < 0.05	171 ± 225	111 ± 90	p > 0.05
GPT (u)	146 ± 145	39 ± 28	p < 0.05	162 ± 287	113 ± 107	p > 0.05
TC (mg/dl)	26 ± 13	28 ± 24	p < 0.05	49 ± 68	39 ± 37	p > 0.05
TTT (u)	2.4 ± 3.0	1.9 ± 0.4	p > 0.05	1.7 ± 1.5	1.8 ± 1.4	p > 0.05

The values are mean value ± standard deviation.

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요 약

급성 비루스성 B형 간염에 대한 고려인삼(홍삼)효과를 이중맹검법으로 시험한 결과 다음과 같은 결과를 얻었다.

1. 4 주 간격 이중맹검법의 제 1 요법과 제 2 요법을 합한 총평가는 인삼투여의 유의적인 효력이 호흡곤란, 현기증을 제외하고는 관찰되지 않았으며 4 주간격 이중맹검으로는 인삼 효력의 유의성을 인정할 수가 없었다.
2. 그러나, 2 주간격 이중맹검법의 결과는 유의성있는 인삼 효력이 관찰되었다. 즉, 제 1 요법에서 인삼 투여기의 Placebo 투여기에 대한 유의성은 피로감, 소화상태, 황달, 위통, 오심·구토, 식욕, 두통, 배변 변화등이 있었으며, 제 2 요법에서는 위통 이외에는 유의성이 관찰되지 않았고, 제 1 요법과 제 2 요법을 합한 종합적인 인삼 효력의 유의성은 식욕, 소화상태, 두통, 위통, 수족의 냉기, 현기증, 오심, 구토, 배변습관, 황달 등의 자각 증상에서 관찰되었다.
3. 혈청학적 개선에 미치는 인삼 효과를 조사한 결과 제 1 요법에서는 conjugated Bilirubin, S-GOT, S-GPT, cholesterol 총량개선에 유의적인 효력이 있었으며, 제 2 요법에서의 Placebo 투여 기간에는 위와 같은 혈청치 개선이 관찰되지 않았다.

위와 같은 이중맹검법에 의한 임상적 연구로부터 고려인삼이 급성 비루스성 B형 간염의 조기 회복에 효력이 있을 것으로 판단된다.

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