A Comparative Clinical Study of Kabdeen and Liv52 in *Warm-e-Kabid Haad Vairoosi* (Acute Viral Hepatitis-B)

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Abstract

Warm-e-Kabid Haad Vairoosi (Acute Viral Hepatitis) is usually caused by one or more of the five viral agents. Among all hepatitis viruses, Hepatitis-B virus is one of the most grievous viral infection which may culminate in liver cirrhosis, carcinoma of the liver or fulminant hepatitis leading to death. In Unani Medicine, plants as a whole or their parts are extensively used for the cure of liver derangements. They are likely to be effective and much safer. In the present study, a comparative therapeutic evaluation of kabdeen and Liv-52 in 20 patients of Warm-e-Kabid Vairoosi (viral hepatitis B) was done. The study shows that the Unani Test Formulation 'Kabdeen' produces significant improvement in cases of Hepatitis-B. Comparison of Kabdeen with the standard agent Liv-52 shows that in the most parameters, the latter is more effective while in some parameters Kabdeen is more effective.

Keywords: Acute Viral Hepatitis-B, Kabdeen, Liv-52, Hepatoprotective activity, Antiviral activity.

Introduction

Liver is the largest exocrine gland of the body which performs a wide variety of functions like nutrients metabolism, protein synthesis, metabolism and excretion of drugs, alcohol, bilirubin and hormones. Apart from storage of vitamin A, B_{12} and Iron it is actively engaged in blood coagulation mechanism of the body also. It is also the only organ next to the pituitary gland in the body which receives the dual blood supply, one from the hepatic artery and another from the portal vein. Therefore, it is more vulnerable to systemic as well as gastrointestinal infections and toxins. Hence it can be insulted in one way or the other. Liver can be insulted in several ways out of which viral infection is the most common cause. Almost all cases of acute viral hepatitis are caused by the five viral agents, viz. Hepatitis A Virus (HAV), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Hepatitis D Virus (HDV) and Hepatitis E Virus (HEV). All these human hepatitis viruses are RNA virus except for the hepatitis B which is a DNA virus. (Braund Wald et al. 2008, Golwalla, *et al*., 2000, Macleod, 2006,). In general the clinical features of all the types of viral hepatitis are similar and can be divided broadly into three phases i.e. Prodromal phase, Icteric phase and Convalescent phase. (Siddiqui, *et al*., 2005).

In this study authors have focused over the acute viral hepatitis caused by hepatitis B virus infection (HBV) because, firstly this infection enters in the chronic phase which very often cause Cirrhosis of Liver, Carcinoma of Liver and Fulminant

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hepatitis which frequently ends in death. Secondly the diagnosis of hepatitis B viral infection was easy as compared to the other viral infections because the anti-sera of other viral infections were very costly and were beyond the reach of our limited budgeting resources.

Materials and Methods

The study was conducted on 30 cases of *Warm-e-kabid Vairoosi* (viral hepatitis) who attended the outdoor and indoor sections of department of Moalijat, Ajmal Khan Tibbiya College Hospital, Aligarh Muslim University, Aligarh in which the presenting feature was jaundice due to acute viral hepatitis. In this research work only the clinical trial on the patients suffering from viral hepatitis B is presented however, Kabdeen, a well- known Unani formulation used in liver disorders was studied for effect on Hepatitis-B. Liv-52 was used as Control Treatment. In the present study 20 patients were selected randomly suffering from viral hepatitis due to Hepatitis-B virus infection confirmed by serological test. The patients were divided into two groups of 10 each. Tablet Liv-52 was chosen as a standard drug while Unani formulation *kabdeen* as test drug. These drugs were given in both the groups for 60 days and the statistical analysis was carried out at appropriate intervals.

Here it is worth mentioning that our core of concentration was to see the clearance the Hepatitis-B surface antigen (HBsAg) from the blood in both the groups. Besides this, of course the amelioration in clinical features and biochemical abnormalities were also our focus of study. The diagnosis was made on the basis of clinical features and serological examination.

Ethical Clearance and Consent

The trial was carried out after the approval of departmental ethics committee and informed written consent.

Study Location

The study was conducted at outdoor and indoor sections of department of Moalijat, Ajmal Khan Tibbiya College Hospital, Aligarh Muslim University, Aligarh.

Study Size

The study included 20 cases of *Warm-e-Kabid Haad Vairoosi* (Acute Viral Hepatitis) Inclusion/Exclusion Criteria:

The patients in whome the presenting features was jaundice due to acute viral hepatitis B were included in the study. The patients suffering from surgical jaundice,

hypothyroidism, hyperthyroidism liver cirrhosis, and diabetes mellitus chronic renal failure, nephritic syndrome, use of estrogen containing oral contraceptives, chronic alcoholics, and having primary gout, were excluded from the study. Similarly smokers and those taking hypolipedemic drugs nicotinic acid statin and cortisone were excluded from this study.

Duration of study

Total duration of study was 60 days.

Treatment, Route and Dose

This clinical trial was concerned with comparison between Unani formulation 'Kabdeen 'and Ayurvedic formulation Liv-52 in the treatment of *Warm-e-Kabid Haad Vairoosi*. The patients were divided into two groups A (Test) and B (Control) comprising of 10 each. In Test group syrup *'Kabdeen'* two tea spoon full (10ml) 8 hourly and in Control group Tab Liv-52 two Tab 12 hourly was given orally for 60 days.

Parameters Studied

In the present study clinical / biochemical / serological parameters studied were jaundice, anorexia, nausea and vomiting, *artharalgia* and myalgia, headache, fever, itching, pain in right quadrant of abdomen, tender hepatomegally, dark urine, clay color stool, serum bilirubin, Transaminases, Alkaline phosphatase, Prothrombin time and HBsAg (Australian antigen).

Statistical Analysis

The values of the different clinical and biochemical parameters were compared witch each other and also with control group. All the results were statistically evaluated by applying paired t' test for the observation recorded before and after treatment.

Composition of syrup Kabdeen per 5ml is as follows:

S. No.	Constituents	Botanical name	Quantity (in mg)
1	Balchar (Root)	*Valeriana jatamasi* DC	80
2	Baranjasif (Leaves)	*Achillea mellifolium* Linn	160
3	Bekh-kasni (Root)	*Cichorium intybus* Linn	80
4	Chiraita sheeren (Whole Plant)	*Swertia chirata* Buch-Ham	80

S. No.	Constituents	Botanical name	Quantity (in mg)
5	Gul-e-ghafis (Flowers)	*Agrimonia eupatorium* Linn	80
6	Gul-e-nelofar (Flowers)	*Nymphaea alba* Linn	160
7	Gul-e-surkh (Flowers)	*Rosa damascena* Mill	80
8	Gul-e-tesu (Flowers)	*Butea frondosa* Koen.ex Roxb.	40
9	Kasondi (Leaves)	*Cassia occidentalis* Linn	80
10	Khulanjan (Root)	*Alpinia galanga*Willd.	40
11	Mako khushk (Leaves)	*Solanum nigrum* Linn	80
12	Nar mushk (Flowers)	*Mesua ferrea* Linn	80
13	Qand safaid (Crystals)	Cane sugar	4.5G.
14	Rewand Chini (Rhizome)	*Rheum emodi* Wall	80
15	Satar farsi (Whole plant)	*Zataria multiflora* Boiss	80
16	Shahtara (Leaves)	*Fumaria officinalis* Linn	160
17	Tukhm-e-bathooa (Seeds)	*Chenepodium album* Linn	40
18	Tukhm-e-kasni (Seeds)	*Cichorium intybus* Linn	160
19	Tukhm-e-kasoos (Seeds)	*Cuscuta reflexa* Roxb.	80
20	Tukhm-e-khyaren (Seeds)	*Cucumis sativus* Linn	160
21	Uood-e-Hindi (Stem)	*Aquilaria agalocha* Roxb.	80
22	Ushba maghribi (Root)	*Smilax aspera* Linn	80

Composition of Liv-52, each Liv-52 Tablet contains

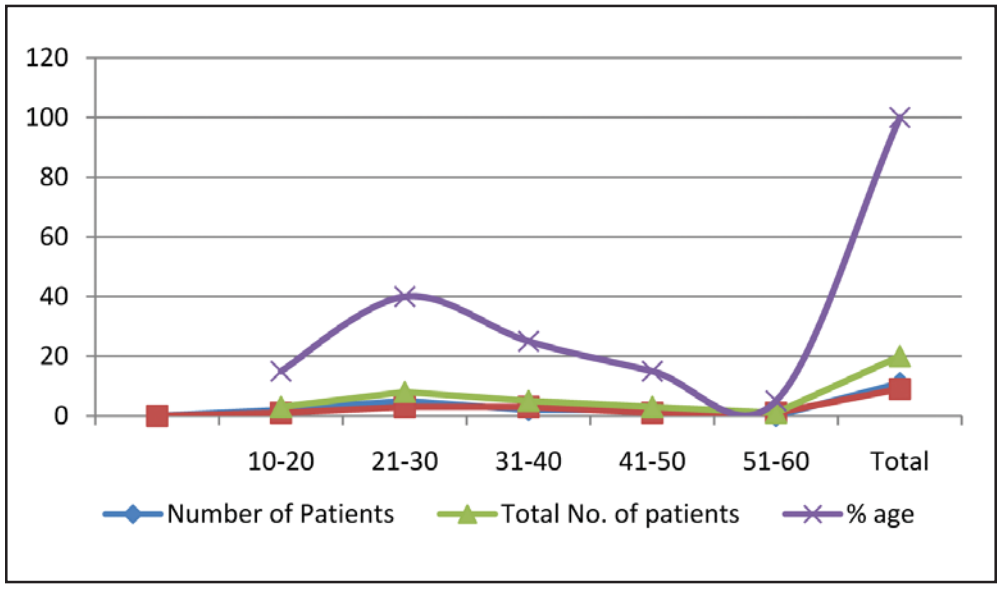
S. No.	Constituents	Botanical name	Quantity (in mg)
1	Himsra	*Capparis spinosa* Linn	65
2	Kasni	*Cichorium intybus* Linn	65
3	Mandura bhasma	*Ferric oxide calx*	33
4	Kakamachi	*Solanum nigrum* Linn	32
5	Arjuna	*Terminalia arjuna* W & A.	32
6	Kasamada	*Cassia occdentalis* Linn	16
7	Biranjasipha	*Achillea millefolium* Linn	16
8	Jhavuka	*Tamarix gallica* Linn	16

Discussion

All the patients in this study were between 10-60 years of age. However the maximum incidence was found to be between 20-30 years of age followed by 30-40 years of age. The male gender predominated the reason may be due to the shaving habits in barber's shop and untold extramarital relationship (Table 1).

Table 1: Showing Distribution of patients according to age and sex n =20

S. No.	Age group (in years)	Number of Patients		Total No. of patients	% age
		Male	Female		
1	10-20	2	1	3	15
2	21-30	5	3	8	40
3	31-40	2	3	5	25
4	41-50	2	1	3	15
5	51-60	0	1	1	5
	Total	11	9	20	100.0

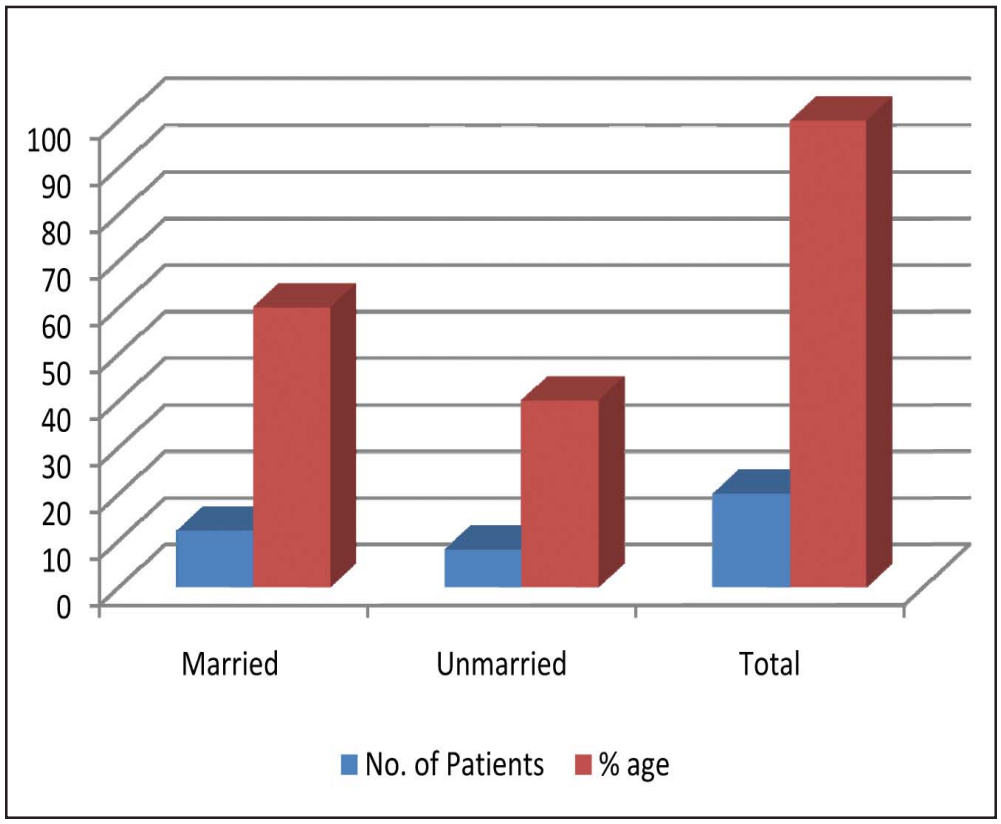


Graph 1: Showing distribution of patient according to age and sex

The incidence was definitely more in married that is 12 (60%) as compared to unmarried person that is 8 (40%) the most obvious reason seems to be through sexual transmission in married couples (Table 2).

Table 2: Showing distribution of patients according to marital status n = 20

S.No.	Marital Status	No. of Patients	% age
1	Married	12	60
2	Unmarried	08	40
	Total	20	100



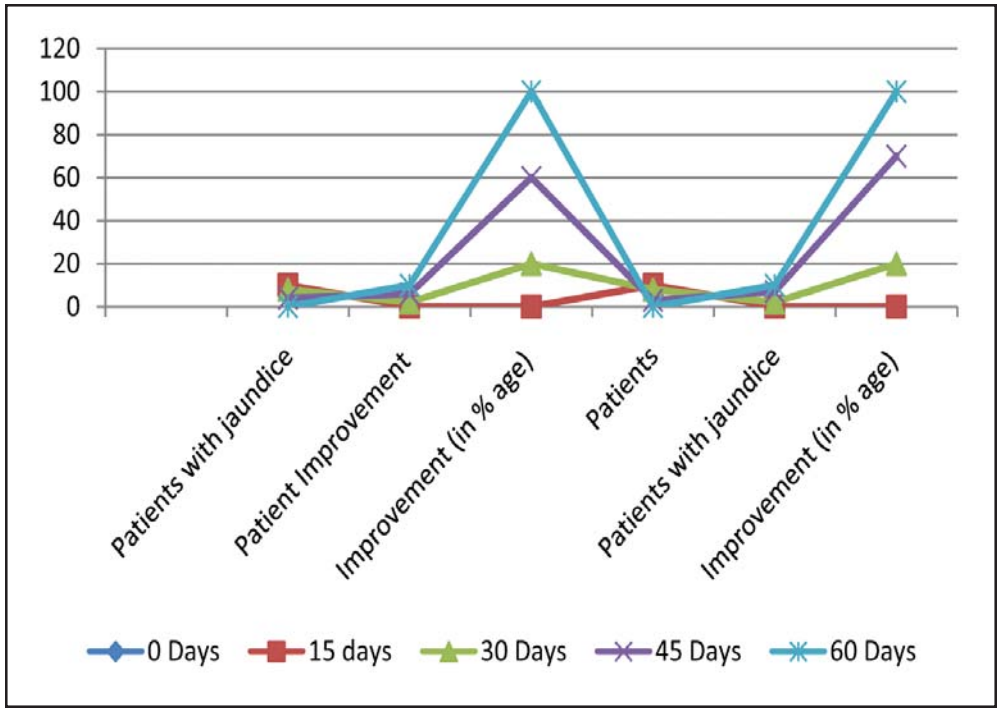
Graph 2: Showing distribution of patient according to marital status

In both the groups clinic jaundice was present in all the patients. Which disappeared completely in after completion of therapy that is 60 days In the test group the improvement may be due to the presence of *Kasni, Mako, Gul-e-Tesu, Revand Chini, Sumbuluteeb, Tukhm-e-Bathoua and Oh-e-Hindi* which are useful clearing the excess bile pigments from blood. (Chopra *et al.*, 1958; Ghazrooni,1311 H; Ibn-e-Baitar,1291H; Nadkarni, 1986).

The slightly better improvement in control group may be due to the additional action of *Kibar, Arjun and Mykala* which has diuretic anti-inflammatory and hepato tonic effect (Table 3).

Table 3: Showing effect of drugs on jaundice n = 20

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 10				
Patients with jaundice	10	10	08	04	00
Patient Improvement		00	02	06	10
Improvement (in % age)		00	20	60	100
Liv– 52	n = 10				
Patients	10	10	08	03	00
Patients with jaundice		00	02	07	10
Improvement (in % age)		00	20	70	100

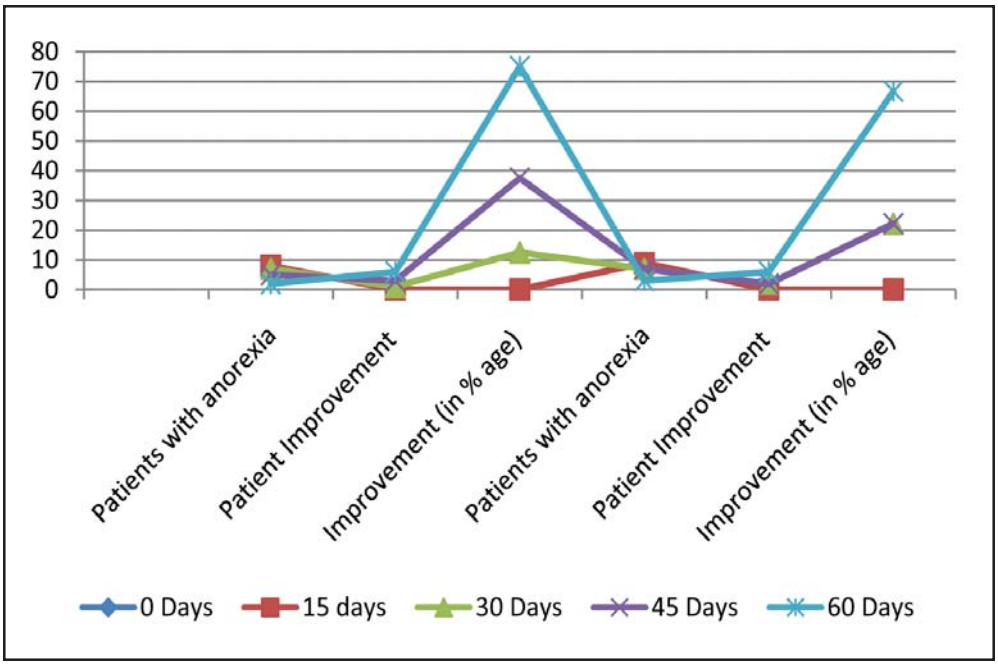


Graph 3: Showing effect of drugs on jaundice

As regard anorexia the improvement was seen in 75% of cases in test group and 66.66 in control group. *Kabdeen* has maximum beneficial effect as compared to control group. the improvement in test group may be due to the digestive and carminative effects of *branjasaf, kasni, mako, gul-e-tesu, sumbuluteeb, satarfarsi.* (Chopra *et al.*, 1958; Ghani,1921; Ibn-e-Baitar,1291H; Goswami,1984).

Table 4: Showing effect of drugs on Anorexia n = 20

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 8				
Patients with anorexia	8	08	07	05	02
Patient Improvement		00	01	03	06
Improvement (in % age)		0.0	12.5	37.5	75.0
Liv – 52	n = 9				
Patients with anorexia	9	09	07	07	03
Patient Improvement		00	02	02	06
Improvement (in % age)		0.0	22.22	22.22	66.66

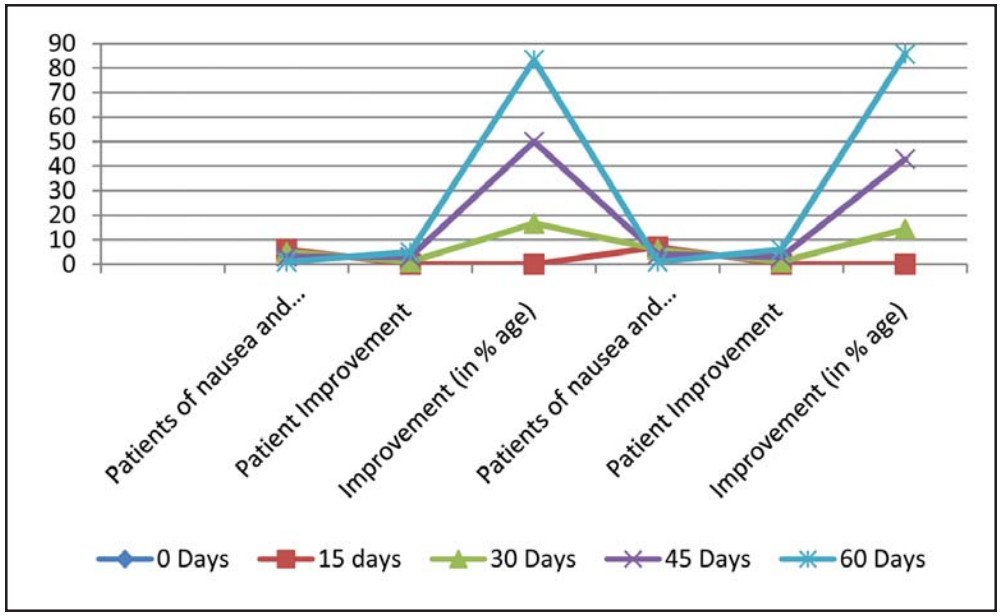


Graph 4: Showing effect of drugs on anorexia

As for as the nausea and vomiting are concerned, 83.33% in Test group while 85.71% of cases in Control group showed improvement. The improvement in Test group show almost similar pattern which may be due to the carminative and digestive effect of *Mako, Kasni, Gul-e-Surkh, Neelofar, Od-e-Hindi, Mayenkalan, Kibar* which are present in test formulaion. (Chopra *et al.*, 1958; Ghani, 1921; Ibn-e-Baitar,1291H; Dhar *et al.*,1968).

Table 5: Showing effect of drugs on Nausea and Vomiting n = 13

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 6				
Patients of nausea and vomiting	6	06	05	03	01
Patient Improvement		00	01	03	05
Improvement (in % age)		0.0	16.66	50	83.33
Liv-52	n = 7				
Patients of nausea and vomiting	7	07	06	04	01
Patient Improvement		00	01	03	06
Improvement (in % age)		0.0	14.28	42.85	85.71



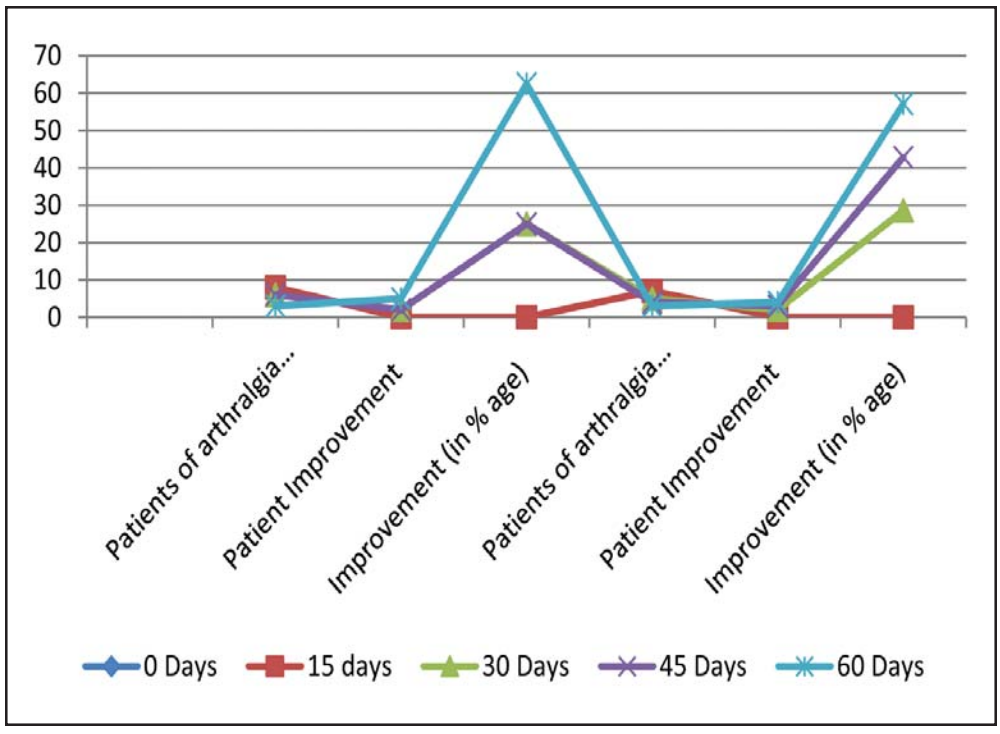
Graph 5: Showing effect of drugs on nausea and vomiting

Artharalgia and Myalgia are clinically important feature of Hepatitis-B as compared to other type of Viral Hepatitis. Those who received Kabdeen had maximum improvement while in Liv-52 only 4 patients showed improvement. This can be explained on the basis that analgesic activity of *Mako*, *Gul-e-Tesu*, *Revand cheeni*, *Gul-e-Neelofar*, *Uood-e-Hindi* and *Khulanjan* present in *Kabdeen.* (Chopra *et al.*, 1958; Ghani,1921; Ibn-e-Baitar,1291H; Goswami,1984).

Liv-52 as such contains one or two analgesic drugs. Apart from this autoimmune response and anti-serum sickness like effect of herbal drugs might be the cause of improvement of *Artharalgia* and Myalgia.

Table 6: Showing effect of drugs on *Artharalgia* and Myalgia n = 15

Duration in days	**Before Treatment 0 Days**	**15 Days**	**30 Days**	**45 Days**	**60 Days**
Kabdeen	n = 8				
Patients of *Artharalgia* and Myalgia	8	08	06	06	03
Patient Improvement		00	02	02	05
Improvement (in % age)		0.0	25	25	62.5
Liv-52	n = 7				
Patients of *Artharalgia* and Myalgia	7	07	05	04	03
Patient Improvement		00	02	03	04
Improvement (in % age)		0.0	28.57	42.85	57.14

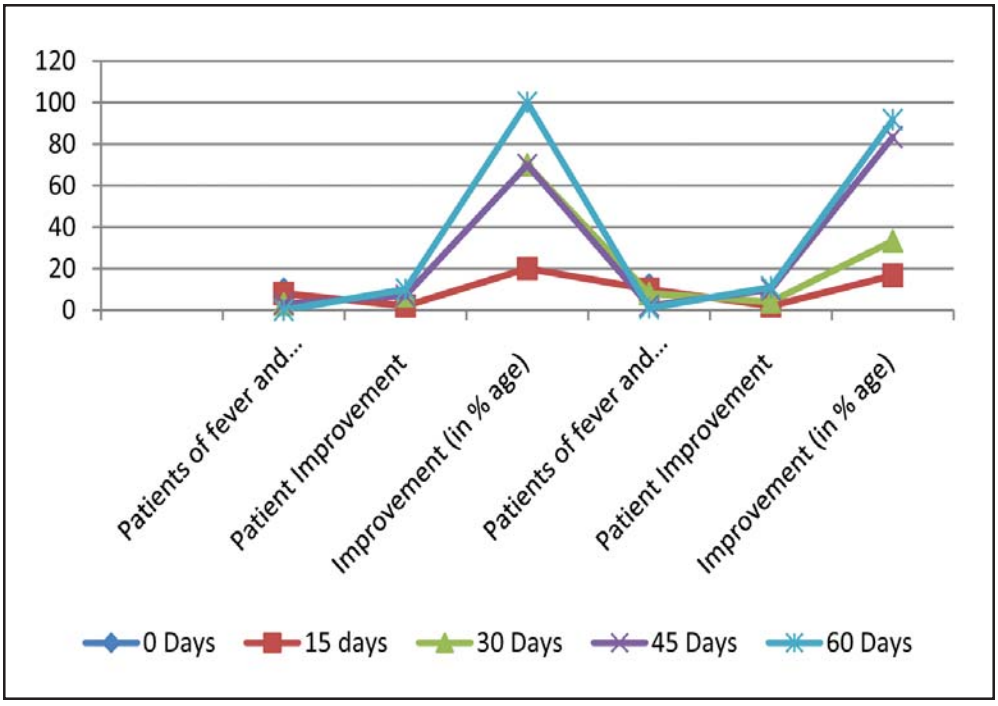


Graph 6: Showing effect of drugs on *artharalgia* and myalgia

The mechanism involved in ameliorating the fever and headache is probably the same as that in Artharalgia and Myalgia as agent that have analgesic property also have the antipyretic property.

Table 7: Showing effect of drugs on Fever and Headache n = 22

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 10				
Patients of fever and Headace	10	08	03	03	00
Patient Improvement		02	07	07	10
Improvement (in % age)		20	70	70	100
Liv-52	n = 12				
Patients of fever and Headace	12	10	08	02	01
Patient Improvement		02	04	10	11
Improvement (in % age)		16.66	33.33	83.33	91.67



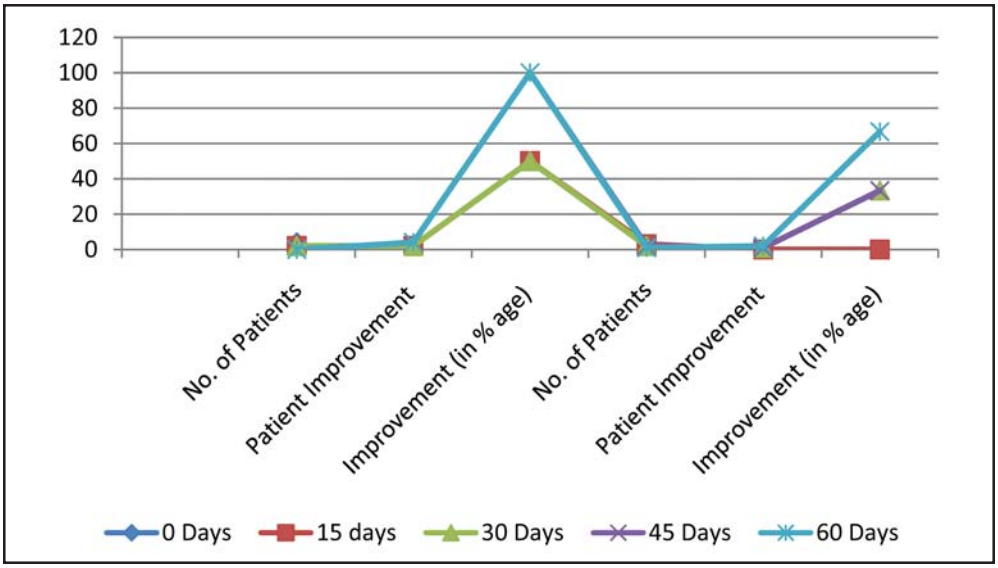
Graph 7: Showing effect of drugs on fever and headache

In the study, it was observed that the itching was the least common symptom amongst the entire symptom. In Test group after 45days of treatment itching disappeared whereas it persisted in one patient in Control group even after 60 days. This improvement may be due to *Mufatteh Sudud*, (Vasodilator), Cholerctic and anti-inflammatory action on *Kupfer* cells thereby facilitating flow of bile due to the presence of *Gul-e-Ghafis, Branjasaf, Mako, Kasni, Shahatra, Tukhm-e-Kasoos, Tukhm-e-Bathua, Khulanjan, Gul-e-Surkh.* (Ghani,1921; Ibn-e-Baitar,1291H;)

The reason of persistence of this symptom even after 60 days in Liv-52 group may be due to the absence of the property of *Tukhm-e-Kasoos, Satar Farsi, Branjasaf* which have *Mufattah-e- Sudud* action present in Kabdeen.

Table 8: Showing effect of drugs on Itching n =7

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 4				
No. of Patients	4	02	02	00	00
Patient Improvement		02	02	04	04
Improvement (in % age)		50	50	100	100
Liv-52	n = 3				
No. of Patients	3	03	02	02	01
Patient Improvement		00	01	01	02
Improvement (in % age)		0.0	33.33	33.33	66.67



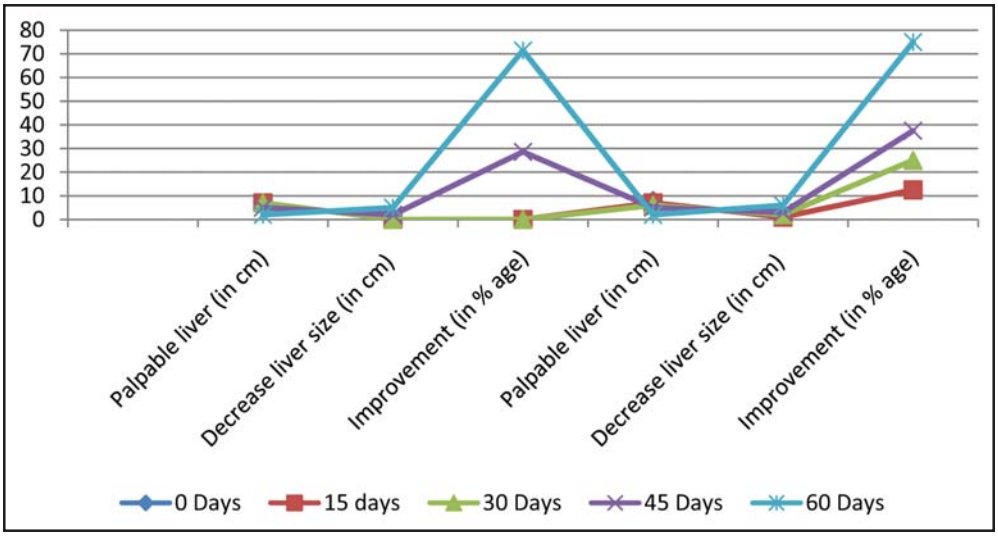
Graph 8: Showing effect of drugs on itching

In the present study 15 patients had this signs. The mean enlargement below the right sub-costal margin was 7 cm in Kabdeen, and 8cm in Liv-52 group. The enlargement in Kabdeen remained same up to 30 days whereas in Liv-52 and Lamivudin group, it decreased by 2 cm.

After 45 days there was a reduction of 2 cm in Kabdeen group and 3 cm in Liv-52 group. At the termination of the trial the liver size decreased by 5 cm in Kabdeen group and 6 cm in Liv-52 group. 75% improvement was seen in Liv-52 and 71.42% in Kabdeen group. The reasons for the decrease in size of liver almost probably the same as discussed in the earlier Table.

Table 9: Showing effect of drugs on tender hepatomegally in (cm)
Decrease Liver Size in Percentage n = 15

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 7				
Palpable liver (in cm)	7	07	07	05	02
Decrease liver size (in cm)		00	00	02	05
Improvement (in % age)		0.0	0.0	28.57	71.43
Liv-52	n = 8				
Palpable liver (in cm)	8	07	06	05	02
Decrease liver size (in cm)		01	02	03	06
Improvement (in % age)		12.5	25.0	37.5	75.0

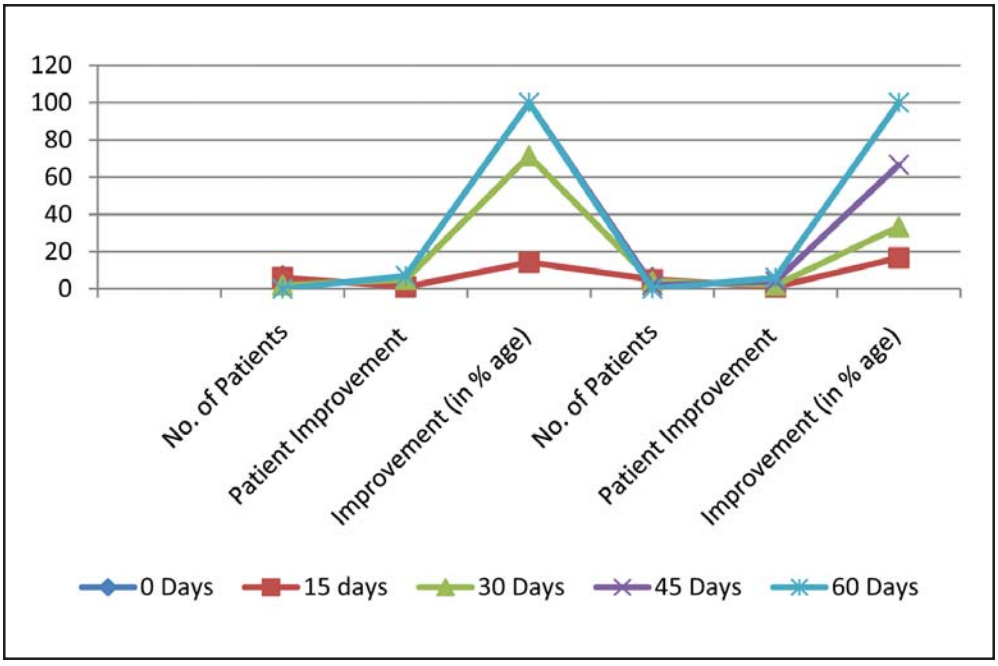


Graph 9: Showing effect of drugs on tender hepatomegaly in (cm)
(Decrease Liver Size in Percentage)

The urine color which was dark yellow due to the presence of urobilinogen before starting the trial reverted to its normal straw color after the completion of therapy in both Test and Control group which shows 100% improvement in Test group due its known diuretic and anti inflammatory activity of *Mako, Kasni, Khayarain* and *munzij* effect of *Mako* and *Baranjasaf.* (Ghani,1921; Ibn-e-Baitar,1291H;) Whereas in control group it took a longer time to achieve the same result because of lacking of drugs having diuretic and anti inflammatory activity.

Table 10: Showing effect of drugs on dark urine n = 13

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 7				
No. of Patients	7	06	02	00	00
Patient Improvement		01	05	07	07
Improvement (in % age)		14.28	71.42	100.0	100.0
Liv-52	n = 6				
No. of Patients	6	05	04	02	00
Patient Improvement		01	02	04	06
Improvement (in % age)		16.66	33.33	66.66	100.0



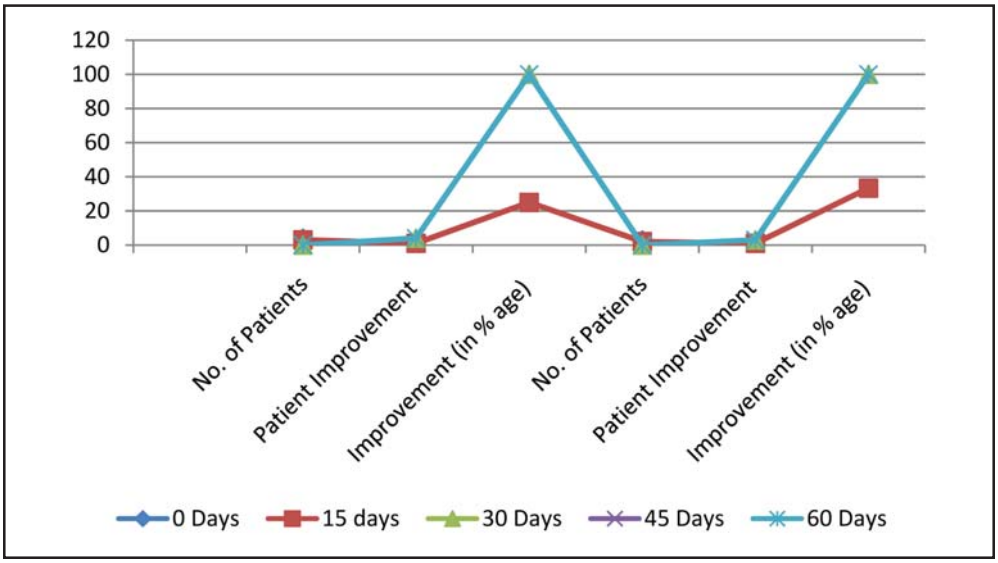
Graph 10: Showing effect of drugs on dark urine

The acute viral hepatitis passes through different stages one of which is the obstructive phase in the initial part of pre-clinical or clinical illness. This stage is due to the edema and obstruction in the flow of bile into the G.I.T which gives stool its characteristic clay color.

In Test group as well as in control group stool regained its normal color after 30 days of treatment. The regaining of normal stool color in test group is most probably due to the natural and uncomplicated course of illness or due to the anti inflammatory action of *Mako*, *Kasni*, *Branjasaf* and *Uood*-e-*Hindi* which reduces the edema of the intra hepatic bile canalicului. (Ghani,1921; Ibn-e-Baitar,1291H;) In Control group the similar pattern is observed. Probably same mechanism involved in control group also.

Table 11: Showing effect of drugs on clay color stool n = 7

Duration in days	Before Treatment 0 Days	15 Days	30 Days	45 Days	60 Days
Kabdeen	n = 4				
No. of Patients	4	03	00	00	00
Patient Improvement		01	04	04	04
Improvement (in % age)		25.0	100.0	100.0	100.0
Liv-52	n = 3				
No. of Patients	3	02	00	00	00
Patient Improvement		01	03	03	03
Improvement (in % age)		33.33	100.0	100.0	100.0



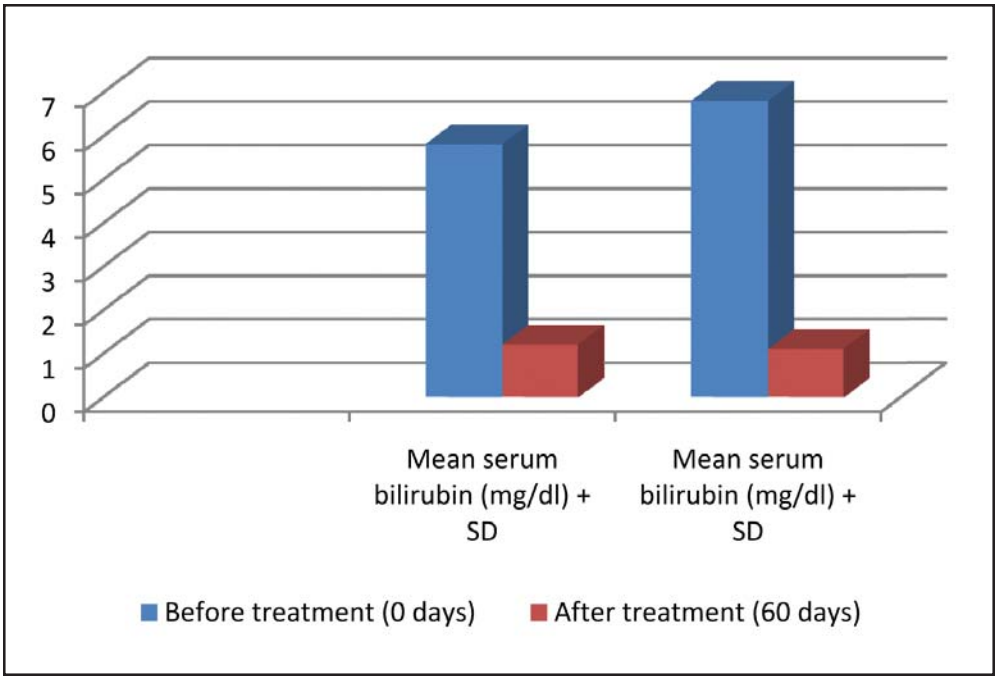
Graph 11: Showing Effect of drugs on clay colour stool

As it is evident from the above tables that the mean serum bilirubin before starting the treatment in both the groups was 5.8 mg %, 6.8 mg respectively which after completion of the therapy i.e. 60 days showed 79.32%, 83.82% improvement respectively.

The improvement in Kabdeen and Liv-52 groups may be due to the anti-inflammatory, cholangogue, cholekinetic, cholereteric and diuretic action of the drugs like *Mako, Kasni, Shahatra, Uood-e-hindi, Kiair, Myenkalan*, and *Arjun*. The marginal superiority in the Liv-52 group may be due to the presence of *Kiair, Myenkalan* and *Arjun.* (Sultana,2001; Chopra *et al.*,1958; Ghani,1921; Ghazrooni,1311H; Ibn-e-Baitar,1291 H; Goswami,1984).

Table 12: Showing effect of drugs on mean serum bilirubin

Parameters	**Before treatment (0 days)**	**After treatment (60 days)**
Kabdeen		
Mean serum bilirubin (mg/dl) ± SD	5.8 ± 1.69	1.2 ± 1.65
N = 10, t = 3.0, p < 0.02		
Liv-52		
Mean serum bilirubin (mg/dl) ± SD	6.8 ± 1.53	1.1 + 1.73
N = 10, t = 5.3, p < 0.001		

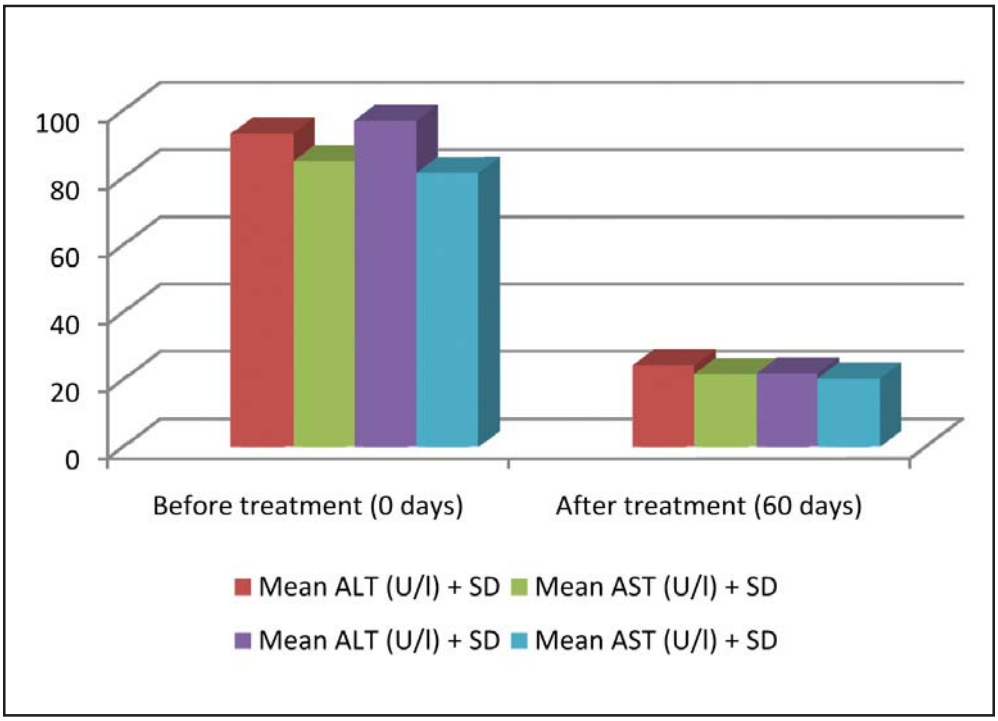


Graph 12: Showing the effect of drug on mean serum bilirubin

The transaminases activity reached within normal after 45 days in Test group as well in Control group. However, greater reduction was observed in Test group. The improvement may be due to the *Mako* and *Kasni* which have hepatotonic effects. Improvement was also observed in control group but at a slower pace.

Table 13: Showing effect of drugs on Transaminases

Parameters	**Before treatment (0 days)**	**After treatment (60 days)**
Kabdeen		
Mean ALT (U/l) ± SD	93.00 ± 1.47	24.00 ± 1.58
N = 10, t = 2.6, p < 0.05		
Mean AST (U/l) ± SD	84.75 ± 1.57	21.44 ± 1.49
N = 10, t = 2.8, p < 0.002		
Liv-52		
Mean ALT (U/l) ± SD	96.78 ± 1.86	21.65 ± 1.65
N = 10, t = 1.91, p < 0.005		
Mean AST (U/l) ± SD	81.25 ± 1.41	20.13 ± 1.88
N = 10, t = 2.80, p < 0.001		

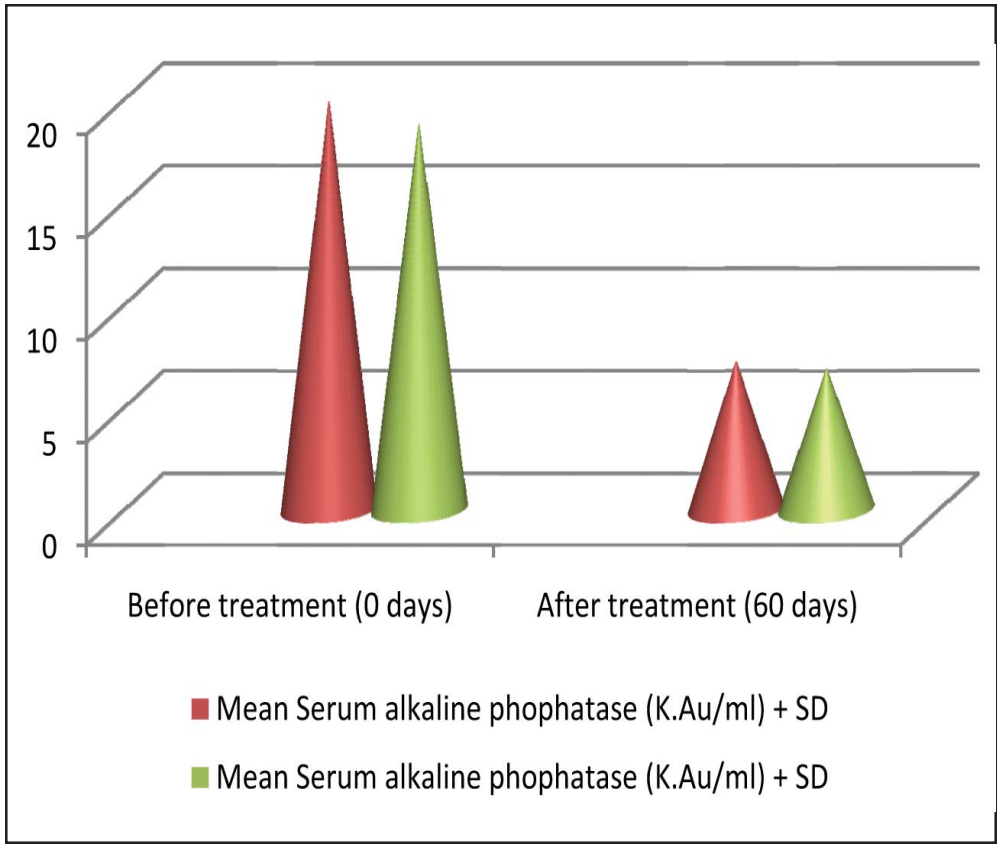


Graph 13: Showing effect of drugs on transaminases

The improvement in both groups may be attributed due to the presence of Unani and Ayurvedic medicine which have diuretic anti-inflammatory and hepatotonic actions thereby by decreasing the edema of kuffer cells facilitating the flow of excess serum alkaline phosphatase and bile.

Table 14: Showing effect of drugs on Alkaline Phosphatase

Parameters	**Before treatment (0 days)**	**After treatment (60 days)**
Kabdeen		
Mean Serum alkaline phophatase (K.Au/ml) ± SD	19.88 ± 1.44	7.2 ± 1.79
N = 10, t = 4.09, p < 0.001		
Liv-52		
Mean Serum alkaline phophatase (K.Au/ml) ± SD	18.76 ± 1.60	6.89 ± 1.49
N = 10, t = 3.3, p < 0.01		

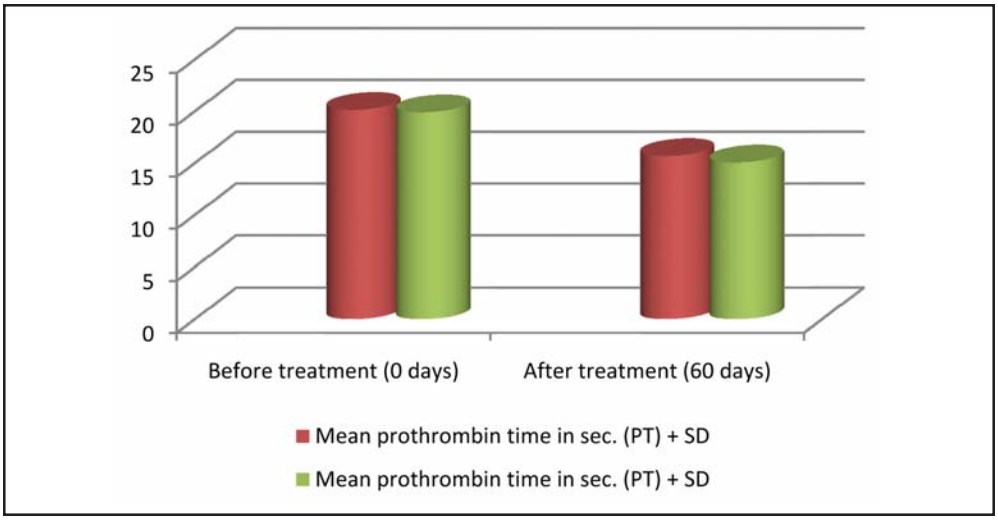


Graph 14: Showing effect of drugs on alkaline phosphatase

The synthesis of coagulation factors is one of the most important function of the liver which may be deranged partially or near completely in any form of viral hepatitis especially hepatitis B viral infection. It is very sensitive indicator of liver function. Its degree of prolongation is directly proportional to the extent of liver damage. While going through the above tables it will be observed that mean Prothrombin time not reached within the normal limits. However, there is also an improvement in both groups. These results prompts that there is every likelihood that if the duration of the study would have been longer Prothrombin time would also have reached within normal limits i.e. around 14 seconds. However the fall is uncourageous in the two groups which may be due to the presence of *Mako, Kasni, Branjasaf, Gul-e-Tesu, Cehraita* and *Arjun*. *Cheraita* which has androgroupholide alkaloid might have stimulated the coagulation mechanism besides hepatoprotective effects.

Table 15: Showing effect of drugs on Prothrombin Time

Parameters	**Before treatment (0 days)**	**After treatment (60 days)**
Kabdeen		
Mean prothrombin time in sec. (PT) ± SD	20.11 ± 1.88	15.66 ± 1.75
N = 10, t = 2.84, p < 0.02		
Liv-52		
Mean prothrombin time in sec. (PT) ± SD	19.88 ± 1.49	15.04 ± 1.68
N = 10, t = 3.24, p < 0.01		

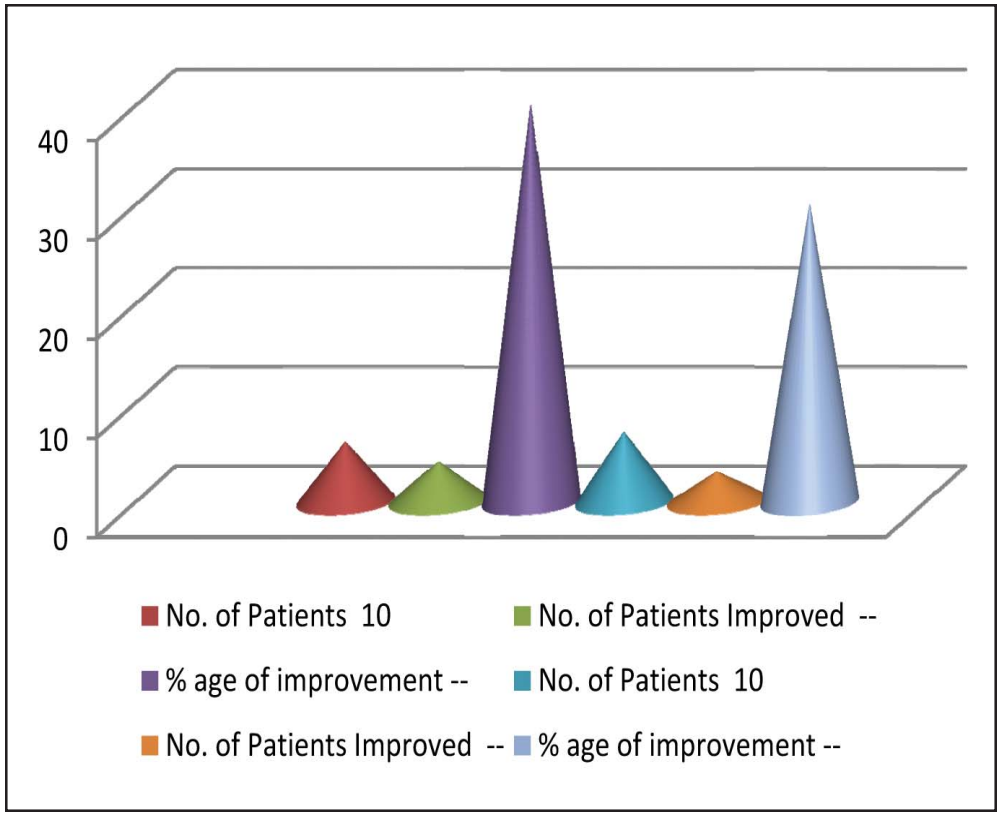


Graph 15: Showing effect of drugs on prothrombin time

As already mentioned only HBsAg (Australia Antigen) positive cases were included in this study. Besides noting overall improvement in sign, symptom and liver function test, our main aim and core of concentration was to know whether any of these drugs converts HBsAg +ve patients to HBsAg –ve status.

Table 16: Showing effect of Kabdeen on HBsAg (Australia Antigen)

Parameters	Before treatment (0 days)	After treatment (60 days)
Kabdeen n = 10		
No. of Patients	10	6 +ve
No. of Patients Improved	—	04
% age of improvement	—	40
Liv-52 n = 10		
No. of Patients	10	7 + ve
No. of Patients Improved	—	03
% age of improvement	—	30



Graph 16: Showing effect of Kabdeen on HBsAg (Australia Antigen)

From observations, it was noted that none of the cases became HBsAg –ve during 60 days treatment. Moreover, some encouraging results are definitely observed that is in the kabdeen group 6 patients remain positive while in liv-52 group 7 patients remained positive. It cannot be clearly deduced that whether this was a natural course of disease or it was because of drugs.

Statically kabdeen group produce the maximum negativity about HBsAg positivity. As for as mechanism of action is concerned it is very difficult to explain the clearance of HBsAg from the blood and it requires exhaustive immunological study. Most probably it may be due to the antiviral activity of one or the other ingredients in our Unani and Ayurvedic formulations.

Conclusion

On the basis of above results and discussion it can be concluded that both the trial drugs (kabdeen and Liv 52) are effective in alleviating the subjective symptoms in the patients of hepatitis B. These drugs also effective in normalizing the markers of liver function test incidentally this test drug is also effective against surface antigen HbsAg. Therefore, it can be concluded that the test drug can be safely used for the management of hepatitis B however long term study is required to elucidate the other pharmacological action and probable mechanism of action of test drug.

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