Role of Unani Drugs in Normalizing Altered Liver Functions in Post Cholecystectomy and Choledocholithotomy Patients

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Abstract

The study of liver is a priority area because the liver plays a big role in normal physiology and is affected by a wide variety of diseases. The liver functions derange not only in liver disorders but in Cholecystitis and Choledocholithiasis as well.

In Unani medicine many mufrad and murakkab drugs have been proved to have hepatoprotective activity. A study was conducted on 100 patients in department of Jarahat, Ajmal Khan Tibbya College, AMU, Aligarh. All patients underwent cholecystectomy and/or choledocholithotomy. Patients were divided randomly into two groups of fifty each. In postoperative period, Group A (test group) was given the unani drugs and Group B (control group) was not given any drug. Patients (Group A) were given Sherbat-E-Deenar (10 ml) and Majoon Dabeed-ul-ward (6 gm), twice daily upto 3 months of post operative period.

Patients were assessed according to symptoms and changes in liver function test. After completion of study it was observed that the patients of group A, who were given unani drugs showed improvement in symptoms and liver function test more rapidly in comparison to the patients of group B who did not recieve any medication.

Key words: Cholelithiasis, Choledocholithiasis, Hepatoprotective.

Introduction

Stone in extra-hepatic biliary system are most commonly found in gall bladder (cholelithiasis) and may be found in cystic duct and common bile duct (choledocholithiasis). Choledocholithiasis is mainly caused by migration of stones from gall bladder (secondary bile duct stones.). In around 10% cases of cholelithiasis, stones are found in the common bile duct. Choledocholithiasis may be found associated with cholelithiasis or may occur after many years of cholecystectomy (primary bile duct stones). Cholelithiasis is the most common surgical pathology in north India (Sarin *et al.,* 1986).The prevalence of gall stones in adult population is 6.12% (men-3.07% and women-9.6%) and it rises with age in both sexes to a peak in 6th decade. Prevalence is significantly higher in age adjusted parous women than in nullipara (Khusroo *et al.,* 1989).

In Classical books of Unani medicine, Unani philosophers had described various theories of cholelithasis, choledocholithiasis and jaundice like Rabban

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Tabri (821 AD) and Majoosi (1010 AD), both described obstruction as a cause of jaundice (Majoosi, 2010; Tabri, 1997 and Tabri, 1981). Rhazes (936 AD) gave the types of jaundice as obstructive and non-obstructive. According to Avicenna (1037 AD) the obstruction in liver (suddah-e-kabid) is the cause of jaundice and this theory was also supported by Ibn-e-Hubal (1213AD) (Ibn-e-Hubul, 1363 H; Lubhaya, 1979).

Akbar Arzani in 1721 AD stated that thick viscid bile is the cause of gall stone while Nafees-Ibn-e-Auz in 1669 AD wrote that the stone in the liver is the cause of jaundice and surgery is the only remedy. Sheikh-ur-Raees, Ibn-e-Sina in 980-1037 AD also mentioned about gall stones in his treatise Cannon of Medicine. (And also Arzani, 1952; Ibn Nafees, 2007; Ibn Sina, YNM; Ibn Sina, 1895; Ibn Sina, 1906).

In Unani classics yarqan (jaundice) is mentioned as a condition in which level of bile in blood circulation is increased, which causes yellow discoloration of sclera and the skin and it is broadly divided into Suddi (obstructive) and ghair suddi (non obstructive) (Majoosi, 2010; Ramzi *et al.,* 1999). Unani physicians also divided yarqan on the basis of color as Yarqan-e-asfar (yellow discoloration of sclera, skin and all the fluids of body) and yarqan-e-aswad (black discoloration of stool, urine and even sweat). Many other classification of yarqan have also been described in old Unani literature (Ramzi *et al.,* 1999). According to Allama Najeeb Uddin Samarqandi, the color of the whole body turns yellow or black in case of yarqan and it is due to absorption of yellow or black khilt (humor) by skin and its underlying structures (Kabiruddin, 1940; Kabiruddin, 1946; Kabiruddin, 1916).

In Unani many Mufrad (single) and Murakkab drugs have been used in liver disorders. Some Unani Mufrad (single) drugs have been found to have hepatoprotective activity like Mako (*Solanum nigrum*), Gul-e-ghafis (*Agrimonia eupatoria*), Dar-e-hald (*Berberis aristata*), Gul-e-Tisu (*Butea frondosa*); Kasni (*Cichorium intybus*); Kutki (*Picrorrhiza kurroa*); Bhangra (*Eclipta alba*), Harad (*Terminalia chebula*); Rehan/Tulsi (*Ocimum sanctum*) and Anar (*Punica granatum*) (Asockson *et al.,* 2001; Chattopadhyay *et al.,* 1992; Chauhan *et al.,* 1992; Doreswamy and Sharma, 1995; Venu and Latha, 2002; Zafar and Ali, 1998). Similarly, many Murakkab preparations have also been shown to possess hepatoprotective activity such as jigrine, icterine (Doreswamy and Sharma, 1995).

Important factors, responsible for gall stone formation are metabolic, infective and bile stasis, Bactibilia, chemical imbalance pH imbalance, increased bilirubin excretion and the formation of sludge are the principal factors that lead

to choledocholithiasis. Obstruction of common bile duct leads to pain, jaundice, cholangitis, pancreatitis and sepsis.

Patients with choledocholithiasis may be completely asymptomatic in about 7% of cases and approximately 25-50% patients have symptoms and require treatment and clinical presentation depends on the degree and level of obstruction and on the presence and absence of biliary infection. Pain is the most frequent presenting symptom. Patient becomes jaundiced when common bile duct becomes obstructed and conjugated bilirubin enters into the blood stream. It can be episodic.

In modern concept surgery is the only modality to cure the patients. Different types of operative procedures are recommended such as choledocholithotomy and T-tube enclosure, choledochoduodenostomy etc for the stone removal and restoration of normal liver function (Russell *et al.,* 2000).

The liver function are deranged not only in the liver disorders but also in cholecystitis, cholelithiasis and choledocholithiasis as they cause the liver damage resulting into the deranged liver function (Ramzi *et al.,* 1999; Schwartz *et al.*, 1990).

We undertook this study to find out the effect of cholelithiasis and choledocholithiasis on liver function and also to find out the role of Unani drugs (Sharbat-e-deenar and Majoon Dabeed-ul-ward) (Razi, 2000; Rehman, 1991) in improving liver function after cholecystectomy and choledocholithotomy considering an additional factor that the liver function is deranged not only by the disease, but also by operative trauma and anesthetic drugs.

Material and Method

This study was an experimental randomized controlled clinical trial conducted during 2003-2008 in the department of Jarahat, Ajmal khan Tibbiya College, AMU, Aligarh.

Written and well Informed consent was taken from the patients before participation into the study. Inclusion and Exclusion Criteria.

Patients who were diagnosed with cholelithiasis and choledocholithiasis by Ultrasound along with deranged liver function test were included in the study and the patients who were having deranged liver function due to causes other than cholelithiasis and/or choledocholithiasis like Hepatitis, Cirrhosis of liver, Cholengiocarcinoma, Carcinoma of head of Pancreas, were excluded from the study.

100 patients diagnosed with cholelithiasis and choledocholithiasis by ultrasound were included in the study. Patients were diagnosed on the basis of subjective (Pain in abdomen, nausea, vomiting etc) as well as objective parameters (Haemogram, liver function test, ultrasound etc). Those patients who had deranged liver function and having signs and symptoms of cholangitis were prepared for surgery by giving IV Fluids, IV antibiotics and injection Vitamin K.

All patients underwent cholecystectomy and/or choledocholithotomy. The selection of patients for choledochoduodenostomy or T-tube drainage was decided preoperatively. T-tube drainage was performed in the patients having adhesions, common bile duct upto 1cm in diameter, single common bile duct stone and in patients in whom mobilization of the duodenum was difficult. In rest of the patients choledochoduodenostomy was done.

The patients were divided randomly into two groups of fifty each, named as Group A and Group B. Group A (Test Group) has been given the test drugs and Group B (Control) has not been given any drug in the post operative period.

Treatment was started after seven days of surgery and liver function test was conducted at regular intervals (07days, 15days, 1month, 2months and 3months). Sharbat-e-deenar (10ml) and Majoon Dabeed-ul-ward (6gms) was given orally twice daily to the patients of test group. Majoon Dabeed-ul-ward is a pharmacopeal drug and its main constituent is Gulab (*Rosa damascus*). Sharbat-e-deenar is a viscid preparation , tukhm-e-kasoos (*Cuscuta reflexa*) is its main ingredient. Duration of treatment was six weeks. Constituents of both the drugs are given in Table 1. Follow up was also maintained even after termination of therapy in both groups. The collected data were analyzed by applying student't' test.

Improvement or assessment criteria

Assessment was done and assessment was done at regular intervals (7^{th} day, 15^{th} day, 1 month, 2 months, 3 months intervals) by observing the effect of drugs on clinical symptomatology of the patients postoperatively after medication with the sample drugs and observing the LFT in the form of Serum Bilirubin, SGOT, SGPT and SAP levels at various levels at various intervals in postoperative period.

Results and Observations

Clinical evaluation was done on the basis of subjective and objective parameters. Out of 100 patients, 90 (90.0%) were females and 10 (10%) were male with the ratio of male: female is 9:1 (Table 2).

During the study among pre-operative complaints maximum no. of patients (99%) complained of pain in rt. upper abdomen, 14% complained of nausea, 52% vomiting, 66% yellowish discoloration of eyes, 48% yellowish discoloration of body, 30% itching all over the body, 30% fever, 34% flatulence, 40% dyspepsia, 66% heartburn and 66% loss of appetite (Table 3).

Table no. 4 shows effect of test drugs on symptomatology in postoperative period. In group A Complain of pain in abdomen improved in 41 patients (no. of patients reduced from 50 to 9 and the improvement was of 82%) and 36 patents improved in group B (no. of patients reduced from 49 to 13 and the improvement was of 73%). Among the patients, complaining nausea 12 got improved in group A (no. of patients reduced from 32 to 10 and the improvement was of 37.5%), whereas in group B just 4 patients improved (no. reduced from 20 to 16 and the improvement was of 20%). Among the patients complaining vomiting, 28 patients improved (the no. reduced to 04 from 32 and the improvement was of 87.5%) in group A, 17 patients improved in group B (no. reduced to 03 from 20 and the improvement was of 85%). In group A, yellowish discoloration of eyes improved in 31 patients (the no. reduced from 33 to 2 and the improvement was of 93.9%) and in group B, 29 patients improved (the no. reduced from 33 to 4 and the improvement was of 87.8%). In group A among the patients who were having yellowish discoloration of body, 24 improved (no. reduced from 25 to 1 and the improvement was of 96%) and in group B. 22 patients improved (no. of patients reduced from 23 to 1 and the improvement was of 95.6%). In group A, among the patients having itching all over body 14 improved (no. reduced from 15 to 1 and the improvement was of 93.3%) and in group B, 15 out of 15 patients were improved and the improvement was of 100%. Among the patients who were having fever, 19 patients improved (no. reduced to 1 from 20 and the improvement was of 95%) in group A and in group B, 8 patients improved (no. reduced from 10 to 2 and the improvement was of 80%). The flatulence improved in 18 patients (no. of patients reduced from 20 to 2 and the improvement was of 90%) in group A and 8 patients improved in group B (no. of patients reduced from 14 to 6 and the improvement was of 57%). Heartburn improved in 34 patients (no. of patients reduced from 36 to 2 and the improvement was of 94.4%) in group A and 23 patients improved in group B (no. of patients reduced from 30 to 7 and

the improvement was of 76.6%). The dyspepsia improved in 22 patients (no. of patients reduced from 23 to 1 and the improvement was of 95.6%) in group A and 13 patients improved in group B (no. of patients reduced from 17 to 4 and the improvement was of 76.4%). There is a marked improvement in loss of appetite, 28 patients out of 29 improved (no. reduced from 29 to 1 and the improvement was of 96.5%) in group A, and in group B 30 patients improved out of 37 (no. reduced from 37 to 7 and the improvement was of 81%).

Thus, it was found that the symptomatic improvement was more marked in group A as compared to group B in the postoperative period.

Table no. 5 shows comparative changes in serum bilirubin levels in both the groups of patients. In group A 14 patients and in group B 16 patients had high serum bilirubin preoperatively (more than 5 mg %). After operation and medication with test drugs the number of patient gradually reduced to 08, 06, 03, 01 in 7 days, 15 days, 1 month and 2 month respectively and on completion of the treatment (after 3 months) there was no patient with more than 5mg% serum bilirubin in group A, while in group B the no. of patient gradually reduced from 16 to 08, 05, 03, 01 after 7 days , 15 days, 1 month and 2 month respectively and on completion of the treatment (after 3 months) 01 patient had more than 5mg% serum bilirubin.

In the range of 3.1-5mg%, 10 patients presented in group A and 8 in group B preoperatively. After 7 days, 15 days, 1 month, 2 month the no. of patients reduced to 10, 06, 03, 01 (in group A) and in group B the no. of patients reduced to 06, 05, 04, 03 respectively and after completion of treatment (after 3 months) there was no patient left in range of 3.1 to 5 mg % of serum bilirubin.

There were 8 and 12 patients who had serum bilirubin between 1.1-3 mg % preoperatively in groups A and B respectively, number of patient in this range reduced to 02 in both the groups respectively.

In the range of 0-1mg%, there were 18 patients in group A and 16 in group B preoperatively and the number of patient increased to 48 in group A and 46 in group B after 3 month. It shows that the patients are shifting from higher serum bilirubin to normal serum bilirubin. For table no 5, the ‘t’ value after 15 days is 0.58, after one month is 0.55, after 2 months is 1.31 and after 3 months 1.22.

Table no. 6 shows the improvement in SGOT in groups A and B. There were 10 patients who had SGOT higher than 80 units preoperatively in group A and 12 patients in group B. After 3 months the number of patients reduced to 1 in both the groups.

In the range of 41-80 units, there were 14 and 12 patients in group A and B respectively. Then the number reduced to 04 after 2 month in group A and 14 on after 2 month in group B postoperatively. There was no patient in this range after 3 months in group A, while in group B, 10 patients remained.

There were 26 patients each in both the groups of patients who had SGOT in the normal range (0-4 units). The no. of patients progressively increased from 7th day to 3rd month in this range (from 26 to 50 in group A and from 26 to 39 in group B), this is due to shift of patients from higher to normal range and the same pattern was observed in group B also but the increase was not in that proportion as in group A. This shows that the sample drug normalizes the liver function earlier. . For table no 6, the 't' value after 15 days is 0.43, after one month is 0.64, after 2 months is 2.35 ($p<0.05$) and after 3 months 2.47 ($p<0.05$).

Table no.7 shows improvement in SGPT levels. Preoperatively there were 10 patients in group A and 8 patients in group B, who had more than 80 units SGPT levels and the number reduced to 0 after 2 month of treatment in group A while in group B there was 1 patient who had high (>80 units) SGPT levels even after 3 months.

In the range of 36-70 units there were 12 and 16 patients in group A and B respectively and the number reduced to 0 and 10 in group A and B after 3 months respectively. There were 28 patients in group A and 26 patients in group B with normal range of SGPT levels (0-35 units). This number increased to 50 and 39 in group A and B respectively, with time due to shift of patients from higher to normal range. . For table no 7, the 't' value after 15 days is 0.65, after one month is 1.23, after 2 months is 1.76 and after 3 months 3.19 ($p<0.01$).

Table no. 8 shows improvement of SAP levels in group A and B. In range of SAP >33 units, there were 11 patients in group A and 16 in group B in the preoperative period. After three months the number reduced to 2 in group A and 4 in group B. Preoperatively, there were 07 patients in group A and 13 in group B in the range of 23-33 units and the number reduced to 03 and 07 in group A and B respectively. There were 29 and 12 patients preoperatively in the range of 12-22 units in group A and B respectively. After 03 months the number declined to 17 in group A and increased to 27 in group B. In the normal range (0-11 units) there were 13 patients in group A and 09 in group B preoperatively. After 3 months the number of patient increased from13 to 28 in group A and from 09 to 12 in group B and this increase is due shifting of patients from higher range to normal range which is more marked in group A. . For table no 8, the 't' value after 15 days is 1.79, after one month is 2.1 ($p<0.05$), after 2 months is 2.37 ($p<0.05$) and after 3 months 2.38 ($p<0.05$).

Table 1 : Composition of Test Drugs

Contents	Botanical name	Part used/Form
Sharbat-e-deenar		
Bekh-e-Kasni	*Cichorium intybus*	Root
Tukhm-e Kasni	*Cichorium intybus*	Seed
Gul-e-surkh	*Rosa damascena*	Flower
Gul-e-neelofar	*Nymphaea alba*	Flower
Gaozaban	*Borago officinalis*	Leaves, Flower
Tukhm-e-Kasoos	*Cuscuta reflexa*	Seed
Rewand Cheeni	*Rheum emodi*	Root
Majoon Dabeed-ul-Ward		
Sumbul-ut-teeb	*Veleriana officianalis*	Herb/Whole plant
Mastagi	*Pistacia lintiscus*	Resin/Gum
Zafran	*Crocus sativus*	Style and stigma
Tabasheer	*Bambusa arundinacea*	Rutubat
Darcheeni	*Cinnamomum zeylanicum*	Bark
Asaroon	*Asarum europaeum*	Root
Qust sheerin	*Saussurea lappa*	Root
Ghafis	*Agrimonia eupatoria*	Flower
Tukhm-e-Kasoos	*Cuscuta reflexa*	Seed
Luk-e-maghsool	*Coccus lacca*	Usara
Tukhm-e Kasni	*Cichorium intybus*	Seed
Tukhm-e Karafs	*Apium graveolens*	Seed
Zarawand taweel	*Aristolochia clematitis*	Root
Habb-e-balsan	*Commiphora opobalsamum*	Fruit/Oil/wood
Qaranfal	*Eugenia caryophyllata*	Dried flower bud
Dana-e-heel khurd	*Elettaria cardamomum*	Fruit

Table 2 : Distribution of patients according to sex

Sex	Number	Percentage (%)
Male	10	10
Female	90	90

Table 3 : Symptomatology in patients preoperatively

Symptoms	No. of Patients	%age	Male	%age	Female	%age
Pain in rt. Upper abdomen	99	99.0	10	10.1	89	89.0
Nausea	14	14	03	21.4	11	78.6
Vomiting	52	52	02	3.8	50	96.2
Yellowish discoloration of eyes	66	66	07	10.6	59	89.9
Yellowish discoloration of body	48	48	07	14.5	41	85.5
Itching all over body	30	30	07	23.3	23	76.6
Fever	30	30	04	13.3	26	86.7
Flatulence	34	34	03	8.8	31	91.2
Dyspepsia	40	40	10	25.0	30	75.0
Heartburn	66	66	09	13.6	57	86.4
Loss of appetite	66	66	13	19.7	53	80.3

Table 4 : Effect of the drug on symptomatology of patients

Symptomatology	Patients on drug			Patients without drug		
	Before treatment	After treatment	Improvement in percentage	Before treatment	After treatment	Improvement in percentage
Pain in rt. Upper abdomen	50	09	82%	49	13	73.4%
Nausea	32	10	37.5%	20	16	20%
Vomiting	32	04	87.5%	20	03	85%
Yellowish discoloration of eyes	33	02	93.9%	33	04	87.8%
Yellowish discoloration of body	25	01	96%	23	01	95.6%
Itching all over body	15	01	93.3%	15	00	100%
Fever	20	01	95%	10	02	80%
Flatulence	20	02	90%	14	06	57%
Dyspepsia	23	01	95.6%	17	04	76.4%
Heartburn	36	02	94.4%	30	07	76.6%
Loss of appetite	29	01	96.5%	37	07	81%

Table 5 : Relation of total serum bilirubin with duration

Range of total serum bilirubin	No. of Patients preoperatively	No. of Patients postoperatively on drug					No. of Patients preoperatively	No. of Patients postoperatively without drug				
		O7 days	15 days	01 month	02 months	03 months		O7 days	15 days	01 month	02 months	03 months
0-1	18	20	26	36	42	48	16	24	26	33	41	46
1.1-3	08	12	12	08	06	02	10	12	14	10	05	02
3.1-5	10	10	06	03	01	00	08	06	05	04	03	00
>5	14	08	06	03	01	00	16	08	05	03	01	00
Total	50	50	50	50	50	50	50	50	50	50	50	50

Table 6 : Relation of SGOT with duration

Range of SGOT	No. of Patients preoperatively	No. of Patients postoperatively on drug					No. of Patients preoperatively	No. of Patients postoperatively without drug				
		O7 days	15 days	01 month	02 months	03 months		O7 days	15 days	01 month	02 months	03 months
0-40	26	28	32	38	46	50	26	28	30	32	34	39
41-80	14	12	12	08	04	00	12	17	16	15	14	10
>80	10	10	06	04	01	01	12	05	04	03	02	01
Total	50	50	50	50	50	50	50	50	50	50	50	50

Table 7 : Relation of SGPT with duration

Range of SGPT	No. of Patients preoperatively	No. of Patients postoperatively on drug					No. of Patients preoperatively	No. of Patients postoperatively without drug				
		O7 days	15 days	01 month	02 months	03 months		O7 days	15 days	01 month	02 months	03 months
0-35	28	30	34	40	44	50	26	36	30	34	36	39
36-70	12	12	10	08	06	00	16	18	15	12	12	10
>80	10	10	06	04	00	00	08	06	05	04	02	01
Total	50	50	50	50	50	50	50	50	50	50	50	50

Table 8 : Relation of serum alkaline phosphotase (SAP) with duration

Range of SAP	No. of Patients preoperatively	No. of Patients postoperatively on drug					No. of Patients preoperatively	No. of Patients postoperatively without drug				
		O7 days	15 days	01 month	02 months	03 months		O7 days	15 days	01 month	02 months	03 months
0-11	13	15	18	23	26	28	09	09	10	11	12	12
12-22	29	21	22	19	18	17	12	18	21	23	25	27
23-33	07	05	04	04	03	03	13	12	11	09	08	07
>33	11	09	06	04	03	02	16	11	08	07	05	04
Total	50	50	50	50	50	50	50	50	50	50	50	50

Discussion

The hepato-protective drugs help in the recovery of liver after damage caused by infection or obstruction or metabolic disease. Although it has been proved, that liver recovers with time, once the cause has been overcome. Most of Unani hepato-protective drugs are Muqawwi-e-jigar, Muhallil-e-auram-e-jigar and they speed up the recovery of hepatocytes thus help in resolving the symptoms of jaundice. Choledocholithiasis is one of the important cause of the obstructive jaundice.

The objective of this study was to demonstrate that some of the unani hepato-protective drugs speed up the recovery after operation as shown in results of the present study. In the study we evaluated two compound Unani drugs which hasten up the recovery of the liver function, and their efficacy has been assessed by the improvement in the enzymatic levels.

In case of obstructive jaundice, once the obstruction is relieved the symptoms disappear. In our study though in both the groups (experimental as well as control) the symptoms disappeared in the same time period, but it has been found that unani drugs are effective at the cellular level also, which can be demonstrated by decrease in the enzymes and serum bilirubin levels. In group A, the chemical parameters became normal in one month period and group B took three months.

Inspite of tremendous advances made in allopathic medicine, no effective scientifically proven hepato-protective medicine is available. Only high carbohydrate diet and bed rest is advised for the recovery of liver. Unani drugs are known to play a vital role in the management of the liver disease.

In Tibb-e-Unani about 42 and in Ayurveda 71 drugs are employed to cure the liver disease. Nearly 150 phytoconstituents from 101 plants are claimed to have hepatoprotective properties. In India more than 87 medicinal plants are used in different combinations (Sharma *et al.,* 1995; Subramanium and Pushpangadan, 1999).

The study was conducted on Arq-e-Afsanteen (A Unani hepatoprotective drug and is used in different liver ailments) in department of jarahat, A.K.T.college in 2006 and it demonstrates that the patients who were on Arq-e-Afsanteen took 3 months to bring the deranged liver function test upto the normal level in comparison to control group which took around 6 months (Aziz *et al.,* 2008).

Another study conducted on poly herbal compound drug, “Kabdeen”, showed beneficial effect on liver enzyme levels. In this study enzyme as well as

serum bilirubin touched the normal level earlier in the experimental group as compared to the control group (Aziz *et al.,* 2008).

Similar effects had been noted in our study that sharbat-e-deenar and majoon dabeed-ul-ward when given to post operative patients of choledocholithiasis, showed beneficial effects on liver enzymes. Serum bilirubin as well as enzymes became normal earlier in maximum number of patients in test group as compared to control group.

Conclusion

It is the demand of today's scientific medical education, to demonstrate the effect of unani drug on cellular or enzymatic level as unani drug possess various properties, besides being Muqawwi-e-jigar and Muhallil-E-Auram-E-Jigar.

In this study we have tried to demonstrate that the drugs Sharbat-e-Deenar and Majoon Dabeed-ul-ward affect the cellular activity of the hepatocytes and the results are positive. In our study though in both the groups (experimental as well as control) the clinical symptoms improved in nearly the same time period but in group A, the chemical parameters (assessed by LFT) became normal in one month period and group B took three months which shows that Unani drugs are effective at cellular level which can be demonstrated by decrease in the enzymatic and serum bilirubin levels.

References

Arzani, H.M.A., 1952. Mezan-ul-Tibb; 4th edition, Daftar-ul-Maseeh, Hyderabad, Deccan. pp. 159-61.

Asockson, C., Ganeson, V., Anuradha, L., Asock , K. N. P., Bala, K. P. and Geetha, V. G., 2001. Hepatoprotective activity of *Punica granatum. Indian Drugs* 38: 183-86.

Aziz, I., Khan, M.N., Hasan, F. and Anwar, A.K., 2008. Role of "Kabdeen" (Unani compound drug) on Liver function test in post choledocholithotomy patients. *Hamdard Medicus* 51(4): 182-88.

Aziz, I., Khan, M.N. and Shah, A.H., 2008. Role of Afsanteen in normalizing liver function after choledocholithotomy. *Hippo. J. Unani Medicine* 4(2):7-13.

Chattopadhyay, R.R., Sarkar, S.K., Ganguly, S., Medda, C. and Basu, T.K., 1992. Hepatoprotective activity of *Ocimum sanctum* leaf extract against

Paracetamol induced Hepatic damage in Rats. *Indian J. of Pharmacology* 24: 163-65.

Chauhan, C.K., Nanivadekar, S.A. and Billimoria, F.R., 1992. Effect of a herbal Hepatoprotective product on drug metabolism in patients of cirrhosis and hepatic enzyme function in experimental liver Disease. *Indian J. of Pharmacology* 24: 107-10.

Doreswamy, R. and Sharma, D., 1995. Plant drugs for liver disorders management. *Indian Drugs* 32: 139-44.

Ibn Nafees., 2007. (Translated by Allama Hakeem Mohd Kabiruddin), Sharahul Ashab, Vol II. Aijaz Publishing House, New Delhi, pp. 547-52.

Ibn Sina, YNM. Al Qanoon Fil Tib (Translated in urdu by Hussain G.S.), Vol I. Munshi Naval Kishore, Lucknow, pp. 141-42.

Ibn Sina., 1895. Kitab Al Qanoon Fit Tib, Vol. 2. (Translated by Molvi Hakeem Syed Ghulam Hussain), Matba Munshi Naval Kishore, Kanpur, p. 90.

Ibn Sina., 1906. Tarjuma Qanoon. Vol. 2. Shaikh Bu Ali Sina, Hakeem Syed Hussain, Matba Munshi Naval Kishore, Lucknow, pp. 53-54, 83, 98-99, 103, 133-34, 195.

Ibn-e-Hubal., 1363 H. Kitabul Mukhtarat fil tib. Vol. III rd. Daftar-ul-Maseeh, Hyderabad, Deccan, pp. 345-46, 355-56, 387.

Kabiruddin, A.H.M., "AL-Akseer".1940. Vol. IInd. Maktaba-al-shifa, Faisalabad, Pakistan, pp. 167, 870, 913-14.

Kabiruddin, H.M. 1946. Bayaz-e-Kabir, 11th ed. Vol. II, Hyderabad, Deccan, p. 111.

Kabiruddin, M., 1916. Tarjuma-e-Kabir, Vol. II. Aijaz publishing house, New Delhi, pp. 666-67, 693, 699-700.

Khusroo, M.S., Maahajan, R., Zargar, S.A., Javid, G. and Sapru, S., 1989. Prevalence of biliary tract disease in India: A Sonographic study in adult population in Kashmir. *Gastroenterology* 30: 201-205.

Lubhaya, H.R., 1979. Delhi ke Muntakhab Murakkabat. Goswami Kutub Khana, Delhi, p. 189.

Majoosi, A., 2010. Kamilus-Sana-E-Tib, 2010. Vol. I, Part I, Idara-e-Kitabus Shifa, New Delhi. pp. 376-77.

Ramzi, S.C., Kumar, V., Collins, T., 1999. Pathological Basis of Diseases. 6th ed. Harcourt Asia (PTE, Ltd.) and W.B.Saunders Company, pp. 848-50.

Razi, A.B.M.Z., 2000. Kitab-ul- Havi, Vol. 7th (Urdu translation), Ali Corporation India, Delhi, pp. 121-23.

Rehman, H.S.Z., 1991. Kitabul Murakkabat. Publication division, Aligarh Muslim University Aligarh, pp. 104-105.

Russell, R.C.G, Williams, N.S. and Bulstrode, C.J.K., 2000. Bailey and Love's; Short Practice of Surgery, 23rd ed., Arnold (member Hodder Headline group) and Oxford University press Inc., New york. pp. 965-66.

Sarin, S.K., Kapur, B.M.L. and Tondon, R.K., 1986. Cholesterol and pigment gall stones in North India: A prospective analysis *Dig Dis. Sci.* 31(10): 1041-5.

Schwartz, S.I., Ellis, H. and Husser, W.C., 1990. Maingot's Abdominal operations, Vol. IInd, 9th ed. Appleton and Lange; A publishing division of Prentice Hall, p. 1381.

Sharma, M., Tripathi, P., Singh. V.P. and Tripathi, Y.P., 1995. Hepatoprotective and toxicological evaluation of hepatomed, an ayurvedic drug. *Indian J. Exp. Bio.* 33(1): 34-7.

Subramanium, A., Pushpangadan, P., 1999. Development of Phytomedicines for Liver diseases. *Indian J. of Pharmacology* 31: 166-75.

Tabri, 1981. Firdaus-ul-Hikmat, (translated in Urdu by Hakeem Rasheed Ashraf Nadvi) Matba Hamdard Foundation Press, Karachi. pp. 635-37.

Tabri, A.H.A.M., 1997. Moalijatul Buqratiya, Vol. III. CCRUM, Ministry of Health & Family Welfare, New Delhi, p. 231.

Venu, K. M.R. and Latha, M.S., 2002. Hepatoprotective effect of the Methanolic extract of 29. *Curculigo orchioides* in Ccl4 treated Male Rats. *Indian J. Pharmacology* 34: 269-75.

Zafar, R. and Ali, S.M., 1998. Antihepatotoxic effect of root and root callus extract of *Cichorium intybus* Linn. *J. of Ethnopharmacology* 61(22): 227-31.