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Review Article

AYURVEDIC MANAGEMENT OF CHRONIC LIVER DISEASE (CLD) -AN ANALYTICAL REVIEW

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ABSTRACT

Liver controls our whole body activities. Liver cirrhosis is a most common medical problem today. One and the chief cause of it is chronic alcoholic consumption. Excessive and prolonged use of alcohol affects every organ of the body. Although liver, heart and kidney are most affected due to heavy consumption, alcohol induced liver cirrhosis is a life threatening condition in maximum cases. More than 50% people of in India rely on Ayurveda and herbal medicine for liver diseases. More than three hundred herbo-mineral preparations are available in Ayurvedic system of medicine for the treatment of jaundice and chronic liver diseases. Ayurveda plays a master role in the fast and safe recovery of damaged liver. Liver cirrhosis can be correlated to *Kumbhakamala* in Ayurveda w.s.r. etiology, symptoms, complications and line of treatment. Ayurvedic drugs helps in rejuvenating the liver and minimizing the complications of cirrhosis such a liver cancer, fulminant hepatitis and prevents the chronicity of the disease. In the present article, analytical review of liver disorders and its management in Ayurveda has been evaluated.

KEYWORDS: Cirrhosis, Ayurveda, Fulminant Hepatitis, *Kumbhkamala*, Detoxification.

INTRODUCTION

Excessive alcohol consumption is the third leading preventable cause of death and remains one of the most common causes of both acute and chronic liver disease in the United States.[1,2] Liver disease burden in India is enormous with 22.2 deaths/ 100,000 population attributed to cirrhosis by the Global Health Observatory data from the World Health Organization.[3] Alcoholic liver disease (ALD), which ranges from simple steatosis to cirrhosis and hepato-cellular carcinoma (HCC), continues to represent a major health issue in the United States and worldwide.[4] Liver diseases and cirrhosis contribute to 23.59% of mortality in the world and ranks 27th as a major cause of death in world. In India, it is 2.74% of all the causes of death [5]. Daily intake of alcohol for 10-12 years with doses in excess of 40–80 g/day for males and of 20-40 g/day for females are generally needed to cause ALD.[6,7] Cirrhosis from any cause represents the 12th leading cause of death in the United States and 45.9% of all cirrhosis deaths are attributed to alcohol. [8] The mortality from alcoholic cirrhosis is higher than that of non-alcoholic cirrhosis with a survival rate at 5 and 10 years of only 23% and 7%, respectively. [9] Chronic liver disease refers to disease of the liver which lasts over a period of six months. It consists of a wide range of liver pathologies which includes inflammation (chronic hepatitis), reduction of size (liver cirrhosis), polycystic liver disease, and hepato-cellular carcinoma.[10] These diseases involve progressive destruction and regeneration of liver parenchyma leading to functional and structural changes in the form of fibrosis.[11]

Hepatitis B virus (HBV) infection, hepatitis C virus (HCV) infection, and alcohol consumption are considered to be the major global etiologies of Liver Cirrhosis [12-14]. Cirrhosis is defined as the histological development of regenerative nodules surrounded by fibrous bands in response to chronic liver injury, which leads to portal hypertension and end stage liver disease. [12] Liver fibrosis results from the perpetuation of the normal wound healing response resulting in an abnormal continuation of fibrogenesis (connective tissue production and deposition).[15] Identification and treatment of underlying etiology can slow progression or partially reverse cirrhosis both histologically and clinically. This is well seen in alcoholic liver disease, where abstinence was associated with improvement in fibrosis, normalization of portal pressure, and resolution (or reduction) of ascites. Similar results are seen in patients with compensated or even decompensated cirrhosis due to autoimmune hepatitis treated with steroids, HBV treated with antiviral therapy and in compensated cirrhosis due to HCV treated with combination therapy. [16] Patients with liver cirrhosis

are more sensitive to medicines and their side effects with evidence suggesting that around 30% of patients with liver cirrhosis exhibit adverse drug reactions (ADRs) and have a high risk of hospitalisation. [17]

According to Manish et al, the only curative yet unaffordable treatment option is liver transplantation in conventional medicine, in India, complementary and alternative medicine (CAM) treatments are often sought out instead, especially Ayurveda, the most established traditional whole medical system (WMS) in South Asia with a well developed infrastructure, recognized by the World Health Organization. [18]

An extensive description of hepatobiliary disorders are found in Ayurvedic classics. The distension of abdomen (*Udara vrddhi*) caused by the functional derangement of liver is known as *Yakrddalyudara* in Ayurveda. This disease has been described in the chapter of *Udara Roga* in Ayurvedic classics.[19] When we open the golden pages of history of Ayurvedic management a vast description of liver cirrhosis is available in Ayurveda in which Dalhana, commentator of Sushruta Samhitha, has quoted that the liver diseases are induced by the intake of unwholesome/ *Apathya ahara* or diet predominantly alcohol/different types of *Madya* that leads to *Pitta prakopa*/ *Dushti*. *Madya*/Alcohol has the similar properties as *Visha*/Poison. In this study, an effort has been made to analytically review the role of Ayurvedic treatment in Liver cirrhosis, a liver disease.

Liver Cirrhosis in Ayurveda

Liver disease that can be correlated *Kamala* or *Kumbhakamala* in Ayurvedic system of medicine may be either due to *Pitta prakopa* or due progression of *Pandu* (*Saadhak pitta*) or multiple etiological factors that manifest at the end of any chronic disease such as Infective viral hepataitis namely HAV, HBV, HCV, HDV, HEV which leads to liver cancer on chronic/untreated conditions, Metabolic, hereditary polluted water as arsenic Copper, Vinyl chloride as in NCPE (Non-Cirrhotic Portal Fibrosis), fluorine and drug induced (ATT induced hepatitis).

Chemical pesticides induced (different types of liver cancer), self/over medication induced commonly paracetamol induced hepato-toxicity on prolonged medication/reye's syndrome giving parcetamol in child already infected with virus etc. By this one can understand the importance of liver. In modern physiology liver is described as the power of human body as it performs multiple functions of human body. Some important functions are metabolism of carbohydrates, fats and proteins, synthesis of bile salts, clotting factor, storage in addition to glycogen, vitamins A,B12, D, E, K. Minerals Iron, Copper Activation of vitamin D, Phagocytosis through Kupffer's cell WBCs and bacteria excretion of biles, detoxification of ammonia, drugs, hormones, cholesterol, innate adaptive tolerance cytokines, energy regulation through gluconeogenesis etc. In short we can interpret that liver is the control point as it controls our whole body activities. There are three main forms of alcoholic liver disorders which are as follows:

1. **Fatty liver:** Usually asymptomatic, presence of soft and tender hepatomegaly. 1/3rd of patients show abnormal liver function tests (LFTs), most patients recover but further the disease progress in those patients who continue with alcohol consumption.
2. **Alcoholic Hepatitis:** This is a serious form of disease. It presents with fever, anorexia, nausea, vomiting, weight loss, jaundice, pain in the right hypochondrium, due to enlargement of liver (tender hepatomegaly), splenomegaly, ascitis and encephalopathy (altered metal state), hepatorenal syndrome in which liver and kidney failure lead to death. Liver enzymes SGPT remain markedly high (>300IU/L), Frequent fatty liver and alcoholic hepatitis co exist with cirrhosis, serum bilirubin increased SGOT; SGPT ratio is always >2 and prolonged prothrombin time (PT) most significant prognosticated value. Prignostic criteria- 4.6* (patient PT- Control PT)+ Serum Bilirubin. (if this value >90. 12-15 sec). Approximately 40% of patients get converted into liver cirrhosis within five years.
3. **Alcoholic Cirrhosis:** This has a wide spectrum of clinical presentation. Some patients remain asymptomatic while others with present alcoholic hepatitis with acute symptoms. Few patiens have the classical presentation of chronic liver disease such as; Jaundice, anorexia, anemia, vomiting, weight loss, gynecomastia, loss of sexual desire, loss of pubic and axillary hair, enlargement of parotid glands, testicular atrophy (due to lack of androgens), white nails, dilated peripheral veins over abdomen, caputmaduce, spider naevus in palm, tender hepatomegaly complications heametasis, malena, ascites, fetor hepaticus (sweetish smell in breathing) flapping tremors stupor, renal failure hepatic encephalopathy, coma and ultimately death.

SGPT: SGOT RATIO >1 (indicative active disease and proved continuous alcohol consumptions).

Prognosis of chronic liver disease – child –pugh grading parameters

Table 1: Grading of Chronic liver disease

Clinical and biochemical measurements	Points scored for increasing abnormality		
	1	2	3
1. Encephalopathy	None	1 and 2	3 and 4
2. Ascites	Absent	Slight	Moderate
3. Serum bilirubin (µmol/l)	<40	40-60	>60
4. Serum albumin (g/l)	>3.5	2.8-3.5	<2-8
5. Prothromin time (secs prolonged)	1-4	4-6	>6

* according to grading of Trey, Burns, and Saunders (1966)

This grading has much prognostic value, but consideration of other factors such as age presence of viral markers, continued alcohol consumption, size of vertices (risk of bleeding), hepato-cellular carcinoma (liver cancer) which develops in 10-25% of liver cirrhosis patients. In Ayurveda very description of different liver disease such as *Kamala* along with *Pandu* and their treatment, complications, *Panki*, *Haleemak* and *Lagharak*. Acharya Charaka has described the incurable symptoms in *Sadhya kamala Kumbh kamala* in chapter 16/38, *Panduroga chikithsa*. Acharya chakrapani dutta interpreted the terms like generalised abdomen or gut swelling.[20]

In modern system of medicine, the liver disease, hepatitis affects the whole GIT. Acharya *Charaka* has described in detail in *Chikitsa* chapter 16, *Pandu roga* as generalized gastro intestinal tract swelling and joints pain. The patient of *Kumbhakamala* complicated form of *Kamala* will die if developed the symptoms of vomiting nausea water brush lassitude dyspnea cough and diarrhoea multiple infections of gut, other gut/*Annavashrotas* symptoms show decreased/*Nashta jataragni*. All the above pathogenesis can be understood with the help of functions of *Pitta* in our body, *Pitta* is the main *Dushya* in the liver disorders as *Kamala*, *Kumbhkamala, Haleemak, Paanki* and other related disorders are abundantly seen in the present scenario. In the above description of the different texts about *Kumbhkamala*/ incurable *Kamala* is classified as *Aanaah, Trishna, Nashtagni, Chhardi, Hrillas* and *Vidbhbeda. Aanaah* (partial pyloric obstruction)- is symptom of gut disturbance in which undigested food/ *Apakwa anna ras*, *Purish*/stool progressively accumulate in the *Aamashaya*/ stomach and *Pakwashaya*/ intestines result in the *Vayu viguna*/ *Pratiloma gati* in the *Mahashrotas* is known as *Aanah*. This is the very serious condition in the liver disorder patient. It can be easily correlated/ understood in the study of bed ridded patient of chronic liver disorders, proper defecation of the bowel and bladder is the main objective of the treatment in such types of cases. In case of cleansing of intestine by normal saline (high colonic levage) for the proper defecation of stool/mal, also removes the NH3 from the gut. In Ayurveda number of medicinal preparations is advised such as *Nitya virechana* with *Hareetiki*. [21]

NH4 is less toxic to body and gets out easily but NH3 and other marcaptans get absorbed in blood circulation reaches brain and hampers the oxygen supply to brain leading to first degree coma and might be fatal. Due to the de-arrangement of *Dhatwagni* located in the liver, *Kharibhuta* -dryness of body fat results. One comparative study on cirrhosis of liver showed that due to the formation of collagen fibers of liver leads to *Krishnapeet, Sakridmutra, Bhransam soonasch manava,* decreased total protein of body and ultimately decreased oncotic pressure of blood resulting into genaralised oedema ascities. Ascities /*Shotha* in the peritoneal cavity leads to dyspnoea, cough and diarrhea further causing electrolyte imbalance/*Trishna. Sarakta akhsi mukhachhardi sarakta in mutra*.[22] Because of *Dushit medha, Tandra moha* and *Nashtasangya* are caused. All the symptoms described above for the chronic liver are due to *Prakupit pitta dosa.*

Management of Liver Cirrhosis/*Kamala*

Avoidance of causative factors

1. Alcohol – Complete abstinence from alcohol is the most important part of treatment.
2. Drugs
   a. NSAIDS such as aspirin, clopidogerel & warfarin etc. Since these may induce bleeding from GIT.
   b. Antipyretics paracetamol- Overdose may be harmful for liver.
   c. Glucocortico steriods- might lead to water retention and oedema.
   d. Sedative and tranquilizers- Diazepalm, chlorodizepoxide- depress the central nervous system and progress into hepatic encephalopathy/ coma.
   e. Loop diuretics- (frusemide)- Can precipitate the hepatic encephalopathy due to hyponatraemia

(loss of sodium) and hypokalamia (loss of potassium).
3. Salt restricted diet- water and sodium retention increases the oedema and blood pressure
4. Complete bed rest
5. Protein rich food
6. Treatment of infection
7. Regularly evacuation of bladder, bowel or putrification of stool increases the ammonia and other toxins that increase the hepatic encephalopathy.
8. Ayurvedic preparations- In Ayurvedic texts there are many single herbo-mineral preparations (compound drugs) available for the successful treatment and prevention of the complications in the case of liver cirrhosis and other conditions.
9. Among single herbs- *Hareetaki, Vibheetaki, Amlaki, Daruharidra, Kalmegh, Katuki, Bhumyamlki*, *Nimba, Makoya, Vasa, Chirata, Amrita, Ghritkumari*, and *Punarnava* are the prominent but many more may be added to it.
10. *Phaltrikadi kwath*- Described in *Sharangdhara* samhitha is one of the most popular and effective preparation that contains the eight herbs namely.[23]

Prescription/ *Rogi Vyavasthapatara* [24]

1. *Phaltricadi kwath*- 30ml BD
2. *Amita swaras*- 20ml BD
3. *Panchtikta ghrita gugulu*- 250 mg BD
4. *Kumaryasav+Abhayarishta*- 30ml BD
5. *Chitrakadi vati* 2 BD- before meal.
6. If *Shoth*/ascites is present then prescription *Vrahit lokath ras* 125mg+ *Punarnav mandoor*125mg + *Yakritpleehari lauh* 125mg + *Kamdudha ras* 125mg-1 dose BD with *Madhu*.

DISCUSSION

Liver is regarded as an important and an irreplaceable organ of human body as it controls multiple body functions. Currently liver disease is on high rise due to multiple causative factors of our sedentary lifestyle that damages liver. All most all liver diseases convert into chronic liver disease, hepatic encephalopathy and ascities. If remained untreated/unsuccessful, these conditions become incurable to treat in any stream of medical science. Management of such case in modern medicine is very expensive and not much effective as different types of hepatitis are viral in origin. The anti-viral therapy has limited rate of success due to changing in genome of virus day by day. The anti viral therapy is very expensive and not affordable by all patients.

In Ayurvedic texts there are so many single herbs, mineral drugs and preparations (compound drugs) that are available for the successful treatment and prevention of the complications in the case of cirrhosis and other condition. Ayurvedic system of medicine plays a vital role in the treatment of GIT disorders by providing effective treatments. The basic need while treating these patients is to evaluate the patient on the parameters of Ayurvedic *Rogi pariksha* to diagnose the disease. Precipitating factors for hepatic encephalopathy such as evaluation of liver function, avoiding factors, diet regimen, care for bladder and bowel has to be evaluated and maintained or else patients might get into encephalopathy. These Ayurvedic drugs can be used in different forms as *Swaras-guduchi, Nimb. Punrnava, Bhumyamalki, Kwath-phaltrikadi, Punarnavashtak, Pathyadi, Vati-arogyavardhini, Asav-kumaryasav, Arishta-abhyarishta, Bhasma-mandoor, Vrhat loknath, Shankh, Punarnava mandoor Ghrit-Panchtikta* etc. Most of the drugs are *Tikta, Kashaya* in *Rasa*, *Madhura* in *Vipaka* and has following properties i.e., *Pittahara, Pittarrechak*, *Yakriduttejak, Deepan, Rechan*, *Pachaka, Shothhara, Jwarahara, Kamala* and *Panduhara, Yakrit* and *Raktvikarhara*, *Tridoshara*, *Rasayana*, *Mutrajanana, Pittasaraka*, *Anulomaka*, *Dahaprashamana* and *Raktapittahara*.

Argyavardinivati along with left juice of *Bhumyamlaki* (*Phyllanthus frataruns* L.) and *Triphla churna* have a significant role to clearing of HBSAg and normalise Liver Transminase in Hepatitis B infected patient within 45 days[25]. *Arogya vardhini vati* has good therapeutic utilities in nonalcoholic liver disorders also. It is a herbo-mineral compound used in the treatment of spleenomegaly, liver diseases, jaundice, oedema and inflammatory conditions. *Bruhat lokanath rasa* contains *Suddha parada, Gandhaka, Abhrabhasma, Lauha bhasma, Tambra bhasma, Varatika bhasma* described Rasendra sara samgraha in context of *Pliha chikitasa*. It contains heavy metals like mercury, copper, so long term use can be monitored. It can be used in liver cancer although evidence is not sufficient.[26] Liv 52 brought a revolution in the biomedical and clinical research in liver diseases. It has 24 clinical papers and 92 experimental studies on liver disorders. It is the highest selling Ayurveda product in India and marketed in 25 countries. Liv 52 has significant effect on the prevention and treatment of viral hepatitis, prophylaxis of adverse effect of chemotherapy in tuberculosis, liver cirrhosis, alcoholic hepatitis etc.[27,28]

In a nonrandomized, uncontrolled, single group, open-label observational clinical study of Manish et al, 56 patients fulfilling standardized diagnostic criteria for HCcA were administered single and compound herbal preparations combined with purificatory measures as well as dietary and lifestyle

regimens. After 6 weeks of treatment and a follow-up period of 18 weeks, the outcomes showed statistically significant and clinically relevant improvements.[18] A case of alcoholic liver disease (ALD) with portal hypertension (cryptogenic cirrhosis) aged 27 presented with yellowish discoloration of eyes, skin and dark urine, generalized itching, pale stools. Reduced appetite, nausea and disturbed sleep accompanied by an uncomplicated cirrhotic ascites with mild encephalopathy. *Nitya virechana* (regular purgatives), *Shamanoushadhi* (palliative drugs) oral administration of single and compound herbal preparations combined with purificatory *Shatkarma* measures as well as dietary and lifestyle regimens were administered in the study of Kumar et al and observed there w complete remission of symptoms with normal hematological parameters.[29] According to Modern mechanism, it can be interpreted that, the herbal hepato protective preparation has properties such as cholegouge, cholertic action, hepatocellular regeneration, antiviral, antioxidant, enzymes and metabolic correction, digestive, membrane stabilizing effect, immune-modulating, anti inflammatory and antipyretic. Ayurveda medicines have shown effectiveness in liver cirrhosis without any adverse effects. But more number of research studies with large sample size is needed to understand the outcome and its suitability.

CONCLUSION

In the today's scenario there are many causative factors that induce toxicity of liver. Some prominent factors such as alcohol consumption, different viral infections, weakness due to any chronic diseases, chemicals in the food particles, drug induced hepato-toxicity and other causes like pseudo-medication, self medication and over medication without advice of a qualified physician, overdose of pain killers and corticosteroids are the culprits in the causation of liver disease. Unhealthy fatty diet and lack of physical exercise leads to fatty liver. Ayurvedic herbal preparations have many advantages like shortening of disease period, early regeneration of parenchymal cells, avoidance of post hepatitis residual symptoms and complications such as cirrhosis, hepatocellular carcinoma and hepatic encephalopathy. Many research studies have been carried out and are being conducted globally on different parameters of the liver disease for the wellbeing of mankind.

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