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A conceptual study on the effect of *Arka Lavana* in *Yakrit Vikara* w.s.r. to Alcoholic Liver Disease

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ABSTRACT

Liver plays many important roles as *Chayapachaya*, *Ranjana* of *Rasa Dhatu*, manufacturing essential compounds, storage, detoxifications to keep the body healthy. Excessive consumption of alcohol (*Madya* with *Amla*, *Ushna*, *Teekshna*, *Vikasi Gunas*) is one of the major cause of *Raktavaha Sroto Dushti* and its *Moola* (*Yakrit*). Diet and lifestyle are major factors which influence susceptibility to liver disorders. Liver disorders are one of the major problems and it is among top ten causes of death in the world. The clinical presentation of alcohol induced *Rasa* and *Raktadushti*, liver cell damage, spleen pathology, vascular damage are considered under the heading of *Rasa* and *Rakta Pradoshaja Vikaras* with special importance to ALD. Here an attempt is made to conduct a study regarding the role of *Arka Lavana* in the management of *Yakrit-Vikar* w.s.r. to ALD.

Key words: *Yakrit Vikara*, *Arka Lavana*, *ALD*, *Alcoholic Liver Disease*.

INTRODUCTION

Liver is vital organ involved in maintenance of metabolism and detoxification of exogenous, endogenous challenges like xenobiotic, drugs, viral infections and chronic alcoholism. Nowadays consumption of alcohol has increased day by day in youth, to imitate elders, social parties, labour strata of population due to social myths and irrespective of gender landed upon having alcohol. Among the liver diseases, fatty liver is the earliest change and ALD is the 10th most common cause of death in India as per the WHO^[9] and 1 in 5 people are affected by the

same.^[9,10] It is generally benign and it alone can be the precursor of cirrhosis and alcoholic hepatitis 9 times than any other cause with no intervention.^[9] Fatty liver may turn to AH (10%-35%) and AC (8%-20%).^[9]

Acharya Bhavamishra for the first time introduced *Yakrit Vikara* with its classification and *Chikitsa*.^[1] The vivid description of *Nidana*, *Poorva Roopa*, *Roopa*, *Chikitsa*, *Upadrava* of *Yakrit Vikara* is available in *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hrudaya*, *Madhava Nidana*. Studies confirm alcohol is the most common hepatotoxic, whose metabolism creates profound liver cell derangements. ALD does not occur below a threshold of 21 units in women and 28 units/week in men. ^[10] There is no complete remedy in allied science for this disease though they are the cause for death and secondary complications among the population of developed and developing countries. Abstinence from alcohol itself is prime without which other therapies are of limited value. Medicines used are found to give only symptomatic relief to patients with hepatic disorders without managing the fundamental cause for symptoms. The prevailing situation obviously calls for revalidation of Ayurvedic formulations. Hence there is a need of

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evaluation of efficacy of herbal drugs which are abundantly available throughout the country. So a conceptual study to evaluate the effect of *Arka Lavana* in *Yakrit Vikara* with special reference to Alcoholic Liver Disease is undertaken.

LITERATURE REVIEW

Samprapti Ghatakas

- **Dosha** - Ranjaka Pitta, Koshtagata Kapha
- **Dooshya** - Rasa, Rakta, Mamsa
- **Agni** - Ranjakagni. Pachakagni
- **Ama** - Jatharagnimandya Janya Ama
- **Srotas** - Raktava and Rasavaha Srotas
- **Srotodushti** - Sanga, Vimargagamana
- **Udbhavasthana** - Amashaya
- **Sanchara Sthana** - Rasa and Raktavaha Srotas and its Moola
- **Adhishtana** - Yakrit
- **Vyakta Sthana** - Udara, Twacha, Netra.
- **Roga Marga** - Bahya and Abhyantara

ALCOHOLIC LIVER DISEASE

Alcoholic Fatty Liver: Alcoholic fatty liver is a condition due to intracellular accumulation of excessive fat within the liver parenchymal cells making the liver enlarged, yellow, grey and firm.^[7]

Alcoholic Hepatitis: Alcoholic Hepatitis is the acute inflammation of liver parenchyma due to infiltration of liver with polymorphs and monocytes characterized by liver cell necrosis, deposition of Mallory bodies and creeping collagenosis.^[7]

Alcoholic Cirrhosis: Alcoholic cirrhosis is a condition resulting from hepatocytes necrosis, collapse of the supporting network with subsequent connective tissue deposition, distortion of vascular bed and the nodular regeneration of the remaining liver parenchyma.^[7]

Types: According to Bhavaprakasha, 4 types viz^[1]

- 1) Vataja 2) Pittaja 3) Kaphaja 4) Raktaja

Arka (Calotropis procera) which is available throughout India is used in the preparation of different dosage forms. It is attributed with following *Gunas*, *Pleehagulma Udara Roga Hara*, *Shleshmavatahara*, *Krimihara*, *Vrushya*, *Deepana*, *Pachana*, *Arochaka Nivaram*, *Tikta*, *Vishapaha*.^[13,14]

Saindhava Lavana is one among the *Panchalavana* and is considered as best among all the *Lavanas* due to its unique qualities such as *Hrudya*, *Vrushya*, *Ruchiprada*, *Pachana*, *Deepana*, *Tridoshashamaka*, *Sheeta*, *Snigdha*, *Laghu*, *Vibhandhaji*, *Mrudu Veerya*.^[2]

Roopa of Yakrit Vikara (ALD)

Yakrit Vriddhi, *Dourbalya*, *Arochaka*, *Varchomootragraha*, *Tamah Pravesha*, *Pipasa*, *Chardi*, *Kasa*, *Shwasa*, *Karshya*, *Pandutva*, *Ruk*, *Manda Jwara*.

Symptomatology of ALD:^[9,10]

AF: Right upper quadrant discomfort, tender hepatomegaly, nausea, jaundice.

AH: Fever, spider nevi, jaundice and abdominal pain stimulating to an acute abdomen.

AC: ascities, pedal edema, dyspnoea, caput medusa.

Treatment^[9,10]

Conservative

- Abstinence.
- Nutritional support.
- Alcohol withdrawal: IV glucose, Thiamine supplement, sedatives.
- Control of Hyperlipidemia and other metabolic abnormalities.
- Alcoholic hepatitis: Steroids, anti cytokine eg: pentoxifylline, infliximab etc.
- Corticosteroids.

Surgical

Liver transplantation (70% 5 year survival)^[10]

Complications of ALD:^[7,9,10]

GI hemorrhage, Hypoglycemia, Hematemesis, Thrombosis of portal vein, Hepatic encephalopathy, Renal failure, HCC

MATERIALS

After reviewing the literature, an attempt is made here to describe the treatment adopted in the study.

Arka Lavana

Method of preparation

Drugs used:

1. Arka (*Calotropis procera*)
2. Saindhava Lavana (Rock salt)

The Arka Lavana is prepared by following standard methods of Lavana preparation and capsules are prepared of 500mg and stored in air tight container.

Subjects will be administered with Arka Lavana 500mg 1 capsule BD before food with 6 parts of lukewarm water for 28 days.

Figures 1: Preparation of Arka Lavana



Source of Data

The study was carried out by selecting patients diagnosed ALD from OPD and IPD of SJIIM, Bangalore

Method of collection of data

Subjects fulfilling the inclusion criteria of either gender were selected randomly based on chronicity of alcohol history, symptoms of *Yakrit Vikara* (Alcoholic Liver Disease), and Liver function test values and USG abdomen changes.

Inclusion Criteria

- Subjects between the age group of 22-70 years irrespective of gender, both fresh and treated individuals, presenting with the signs and symptoms of *Yakrit Vikara*.
- History of alcohol consumption for 3 years or more with the signs and symptoms of ALD.
- History of alcohol consumption with Elevated Liver function test values with or without the symptoms of *Kamala*.
- History of alcohol consumption with Abnormal imaging impressions USG abdomen.

Exclusion Criteria

- Subjects with ALD diagnosed with other systemic diseases like Diabetes mellitus, ischemic heart disease, chronic renal failure, myxedema, nephrotic syndrome, hypertension etc., or conditions which interfere with the course of study.
- Patients with ALD diagnosed with Pancreatitis, malignancy, hepatic disorders of infective origin like hepatitis A,B,C.
- Patients with complications of *Yakrit Vikara* ALD such as Hepatic encephalopathy (*Mada Murcha Sangyasa*), coagulopathy, variceal bleeding.
- Patients whose USG – abdomen showing acute alcoholic hepatitis and cirrhotic changes.
- Patients with ALD with Alcohol withdrawal symptoms
- Pregnant and lactating women.

Note: Subjects were excluded after detailed clinical examination and diagnostic investigations.

Diagnostic criteria**ICD 10: 2019 K70.0 Liver Disease**

1. A clinical diagnosis of ALD will be made on the basis of signs and symptoms after collecting alcohol consumption history for minimum 3 years and detailed physical examination of the patients.
2. Elevated liver enzymes viz, SGOT (AST), SGPT (ALT) and GGT.
3. Imaging - USG Abdomen
4. Hepatosplenomegaly

Study Design

The present study is a randomized single blind clinical study with pre and post test design.

Sampling Procedure

After diagnosis, excluding dropouts 40 cases of *Yakrit Vikara* (ALD) will be incidentally selected. Subjects will be administered with *Arka Lavana* (500mg) 1 Cap BD before food with lukewarm water for 28 day.

Observations regarding the changes will be made before and after the treatment of 28 days. These observations will be recorded in the proforma of case sheet prepared for the study.

Advise: During the treatment suitable *Pathya Apathya* were advised to both the groups like complete abstinence from Alcohol, low fat diet, high protein diet.

The results obtained were statistically analyzed and conclusions were drawn.

Parameters of the study**Subjective Parameters**

- *Kamala*
- *Mandajwara*
- *Hrullasa*
- *Balamamsa Kshaya*

Objective Parameters

- LFT

USG

Assessment of the condition of the patient was done before and after the treatment. Data was analyzed by applying Paired and unpaired t- test.

DISCUSSION

Arka (Calotropis procera) which is available throughout India is used in the preparation of different dosage forms. It is attributed with following *Gunas, Pleeha Gulma Udara Roga Hara, Shleshmavatahara, Krimihara, Vrushya, Deepana, Pachana, Arochaka Nivaram, Tikta, Vishapaha*.^[13,14] *Saindhava Lavana* is one among the *Panchalavana* and is considered as best among all the *Lavanas* due to its unique qualities such as *Hrudya, Vrushya, Uchiprada, Pachana, Deepana, Tridosha Shamaka, Sheeta, Snigdha, Laghu, Vibhandhaji, Mrudu Veerya*. *Arka Lavana* is mainly indicated in the management of *Yakrit Pleeha Rogas* (Diseases of Liver and Spleen), *Udara* (Ascites), *Atisara* (Diarrhea). It has different actions with different *Anupanas* (Vehicles) like *Koshnavari* (luke warm water), *Dadhi Mastu* (curd supernatant).

CONCLUSION

The properties of the drugs will cause *Samprapti Vighatana* by mitigating the *Kapha* and *Vata* leading to *Marga Vishodhana*. Once the *Marga Shodhana* occurs then there will be *Prakruta Karmas* of *Pitta* like *Ranjana, Deepana, Pachana* will be brought back.

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