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Review Article

ETIOPATHOGENESIS OF *YAKRUTH VRIDDI* W.S.R ALD

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ABSTRACT

Yakruth plays an important role in the *Chayapachay* and *Ranjana* of *Rasa Dhatu. Yakruth* and *Pleeha* are formed by the *Raktadhatu. Yakruth* is situated at the *Dakshina bhaga* and *Pleeha* at the *Vaama bahga*. *Yakruth* and *Pleeha* are the *Moola Sthana* of the *Raktavaha Srothas. Madya* is considered as alcohol it's having qualities of *Amla Usha laghu Tikshna, Sukshma, Vyavayi Ruksha Vikasi* and *Vishada. Madya* vitiates *Pitta* as well as *Rakta* and that leads to *Yakruth Vriddi*. *Rakta* is one of the main *Dushyas* in *Yakruth Vriddi.* Diet and lifestyle are major factors that influence susceptibility to liver disorders. Alcohol use is quite common in India. According to recent data published by NHPI 74% of men and 48% of women are alcoholics. Alcohol disorders cover the spectrum of disorders beginning from the fatty liver, jaundice, hepatomegaly, ascites, and cirrhosis advanced and irreversible forms of liver injury related to the consumption of alcohol. There are three histopathological stages of alcoholic liver disease alcoholic fatty liver, alcoholic hepatitis, and, alcoholic cirrhosis. These alcoholic liver disorders' pathogenesis can be understood in Ayurveda with the help *of Kamala, Yakruth Vriddhi, Shchutha,* and *Ashchutha Yakruthodara.* Hence an attempt is made to understand the etiopathogenesis of ALD w.s.r *Yakruth Vriddi*.

INTRODUCTION

Yakruth is formed from the three *Bhavapadarths- Samana Vayu*, *Dehoshma*, and *Rakta Dhatu*. The main function of *Yakrith* is *Ranjana* of *Rasa Dhatu*[1] and it is also *Moola* of *Raktavaha Srothas*.[2] *Yakruth* is considered as a *Raktashaya. Rakta Dhatu* has dominance of *Teja* and *Jala Mahabhuta*[3]. *Pitta* and *Rakta Dhatu* are having *Ashrayaashrayee bhaava*[4]. Most of the qualities of the *Rakta* and *Pitta* are same. a pathology in the *Pitta* or *Rakta* causes Disturbance in *Moolastana Yakrith. Madya* is considered as alcohol it is having qualities of *Amla Usha Laghu Tikshna, Sukshma, Vyavayi Ruksha Vikasi* and *Vishada*[5]. *Madya* vitiates *Pitta* as well as *Rakta* and that leads to *Yakruth Vriddi*. Alcohol use is quite common in India.

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According to recent data published by NHPI 74% of men and 48% of women are alcoholics. Alcohol disorders cover the spectrum of disorders beginning from fatty liver, hepatitis, and liver cirrhosis.

AIMS AND OBJECTIVES

Critical analysis of the etiopathogenesis of *Yakruth Vriddi* with special reference to alcohol liver disorder.

MATERIALS AND METHODS

Reference from various *Samhitas* is collected and compiled and further analyzed critically. This is a conceptual type of study where all sort of reference related to *Yakrith Vriddi* and ALD has been collected. All the material is analyzed and an attempt has been made to draw some fruitful conclusions.

DISCUSSION

Nidana

Yakrith can be vitiated by various aetiological factors, *Madya* is one among them. The *Dasha Guna* of the *Madya* are *Amla Usha Llaghu Tikshna, Sukshma, Vyavayi Ruksha Vikasi* and *Vishada*[6]. These *Gunas* are as similar as *Visha Guna* and renders it as a prime *Pittaprakopaka* agent and as important *Hetu* of *Rakta*

Dusti due to its *Gunathmaka, Panchabhouthika, Sanghatanathmaka* similarities to *Rakta Dhatu.* It vitiates *Pitta* due to *Ashraya-Ashrayee Sambhanda* hence *Madya* vitiates *Rakta* and *Pitta.* These directly vitiates *Yakrith* because it is *Moola* of the *Rakta dhatu* and *Sthana* of the *Ranjaka pitta*. This can be termed as ALD as per Contemporary norms through the pathophysiology or *Samprapthi* in this context invariably involves.

Pitta, Vata as a *Dosha*

Rakta as *Dushya*

Twak as *Upadhatu*

Mutra and *Purisha* as *Mala*

Jataragni and *Raktadhatvagnimandya*

Alcohol addiction is considered a prime aetiological factor of Alcoholic Liver Disease (ALD) which is a worldwide lifestyle disorder. Alcohol-related disorders are physically, mentally, and economically disturbing to an individual. Alcohol addiction is the primary cause of liver disorders. According to recent data published by NHPI 74% of men and 48% of women are alcoholics. Alcohol consumption among both men and women is higher in rural India than in urban India, among women, Arunachal Pradesh is followed by Sikkim; among men, it is followed by Telangana[7].

Alcohol and its Metabolism

The liver is the site of detoxification in the human body. It plays important role in alcohol metabolism by oxidation resulting in the formation of products like acetaldehydes, free radicals and adducts that damage the liver hepatocyte and impairs vital functions. It is further aggravated by the body's defence mechanism.

The oxidative process takes place in 3 steps

Step 1

Conversion of alcohol into acetaldehyde by Alcohol Dehydrogenase (ADH) and its coenzyme.

Step 2

Transformation of toxic acetaldehyde into non-toxic free acetic acid or it activates the form of acetyl co-enzyme A by Nicotinamide Adenine Dinucleotide (NAD)

Step 3

Oxidation of the acetate in the Kreb's cycle into carbon dioxide and water result in the formation of glycogen, proteins, and probably fat and cholesterol.

The liver convert acetaldehyde into acetic acid, it reaches a saturation point where some of the acetaldehyde escapes into circulation. This high acetaldehyde level impairs mitochondrial functions and further impends to conversion into acetic acid. A continuous increase in the acetaldehyde level in this manner results in further liver damage, hepatitis, and liver cirrhosis.

Etiopathology of ALD

Excessive alcohol consumption is a major cause of liver diseases. It accounts for 5.5 million of death globally. Alcohol consumption leads to death and disability earlier in life than other forms of chronic liver injury. Pathogenesis always depends on gender, ethnic and genetic differences, comorbid conditions, and dose of alcohol. 240ml of alcohol consumption over one to several days causes mild, reversible, hepatic steatosis. If again dose of alcohol increases over 10 to 20 years, its results in severe liver injury. The alcoholic liver injury occurs in different stages

1. Steatosis or fatty changes
2. Alcoholic steatohepatitis
3. Fibrosis which leads to cirrhosis

Steatosis

Alcohol is the one that gets metabolized in the liver and forms acetaldehyde with the help of alcohol dehydrogenase, again this acetaldehyde is further gets converted into acetic acid by means of acetaldehyde dehydrogenase. NAD is converted into NADH, there will be a utilization of NAD and an Increase in NADH, in the hepatocyte resulting in the alteration of the redox ratio that leads to suppression of fatty acid oxidation, impaired lipoprotein assembly, and secretion. forms the accumulation of fat in the hepatocytes. Alcohol also increases the peripheral catabolism of fat leading to increased fat in the circulation that result in a fatty liver.

Alcohol Steatohepatitis

There are 4 types of mechanism

1. Excess consumption of alcohol forms acetaldehyde. This forms a 2 adducts one is protein and another one is a protein adduct. Chemical adduct results in the formation of neoantigens, it stimulates the autoimmune response of the body that leads to hepatocyte injury. Protein adducts results in oxidative stress and causes liver injury.
2. Induction of microsomes with CYP2E1. CYP2E1 is an enzyme that helps to the metabolism of alcohol and generates reactive oxygen species have generated that lead to hepatocyte Injury.
3. Alcohol metabolism impairs methionine metabolism it lowers the glutathione in the body, which causes susceptibility to oxidative stress resulting in hepatocyte injury.
4. Alcohol increases the bacterial endotoxin uptakes in the gut which induces an inflammatory response in the liver and causes hepatocyte injury.

Hepatic Fibrosis

It causes inflammation of hepatocytes, kuffer cells, or endothelial cells. They activate stellate cells. Once stellate cells activate, by means of these releases of cytokines and chemokines. Active stellate cells get transformed into fibrogenic cells with myofibroblast[8].

Clinical Interpretation of Symptoms

Fatty Liver Grade 1: Usually Asymptomatic Grade 2: Rt hypochondriac pain (mild) Nausea Grade 3: AF: Right upper quadrant discomfort, tender hepatomegaly, nausea and jaundice [9]	*Pittaja Shoola*
Hepatitis Jaundice: Yellowish discoloration of Sclera, skin, nails, and urine, Dark brown colored stool, tiredness, weakness, loss of appetite[10] Hepatomegaly: Enlargement of liver [11] Portal hypertension: Fever, spider nevi, abdominal pain	*Kostashakashritha: Haridra Netra, Haridre Nakha, Aanana, Hathendriya, Avipaka, Daha Agnisadana[12]* *Shakashrita Kaamala: Haridra Netra, Mutra, Twaka* *Shwetha Varchas [13]* *Kumba kamala:* Stool and urine turns to blackish yellow color, *Shwasa, Kasa, Vitbheda [14]*
Alcoholic Liver Cirrhosis [15] Ascites Esophageal avarices gastrointestinal hemorrhage anorexia, weight loss, weakness, Peri-umbilical Caput-medusae	*Yakrudodara: Dakshina Yakrith Chyutha, Sthana Pravardana, [16]* *Sparshana: Kathina, Asthilavath Kachyapa Samsthana* *Chyuth* and *Achyuth Yakrith[17]* *Jalodara: Annanakanksha, Pipasa, Gudasrava Shoola, Shwasa, Kasa* and *Dourbalya,* *Udara Pareeksha:* *Darshana: Nanavarna Raji Sira* *Sparshana: Udakapoorna Drutikshobha Sparsha [18]*

CONCLUSION

Alcohol abuse or alcohol addiction is a brain-centred addictive behavioral disorder. Acknowledges no limits of age gender or economical status. Alcohol is considered as prime etiological factor of alcoholic liver disease (ALD). *Madya* vitiates *Pitta*, *Rakta* and *Ojas* Because of their qualities. These vitiated *Pitta Rakta* and *Ojas* Moves to the *Yakrith* and cause *Yakrith Vikar*. The *Lakshna* of *Yakrith Vikara* and ALD of different stages are all most same. Hence an attempt is made to understand the etiopathogenesis of ALD w.s.r *Yakruth Vriddi.* It will help to choose the treatment protocol in Ayurveda.

REFERENCES

1. Sushruta; Sushruta Samhita; with Nibandha Sangraha commentary of Sri Dalhanacharya, edited by Yadavji Trikumji Acharya; Chaukhamba Samskrit Sansthan Varanasi; reprint 2019; 14/4-5; pp 59
2. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa vimanasthana 5/8; pp 250
3. Sushruta; Sushruta Samhita; with Nibandha Sangraha commentary of Sri Dalhanacharya, edited by Yadavji Trikumji Acharya; Chaukhamba Samskrit Sansthan Varanasi; reprint 2019; Shareerastana 5/8; pp 364
4. Astanga Hrudayam; with Sarvangasundara of Arunadatta and Ayurvedarasayana of Hemadri; edited by Pt, Bhisagacharya Harisastri Paradkar Vaidya; Krishnadasa Academy Varanasi: Reprint 1995; Sutrastana 11/26-28; pp 186
5. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana 24/30; pp 583
6. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana 24/30; pp 583
7. https://indianexpress.com/article/explained/alcohol-consumption-in-india-trends-across-states-age-groups-7920871/

8. API textbook of medicine; 9th edition published by: Association of physician of India Reprinted in 2012: 2nd volume; Section 14; Alcoholic liver diseases; page no 873
9. API textbook of medicine; 9th edition published by: Association of physician of India Reprinted in 2012: 2nd volume; Section 14; Alcoholic liver diseases; page no 875
10. API textbook of medicine; 9th edition published by: Association of physician of India Reprinted in 2012: 2nd volume; Section 14; Alcoholic liver diseases; page no 875
11. API textbook of medicine; 9th edition published by: Association of physician of India Reprinted in 2012: 2nd volume; Section 14; Alcoholic liver diseases; page no 875
12. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana16/35; pp 528
13. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana16/36; pp 528
14. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana16/38; pp 528
15. API textbook of medicine; 9th edition published by: Association of physician of India Reprinted in 2012: 2nd volume; Section 14; Alcoholic liver diseases; page no 877
16. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana14 /37; pp 491
17. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana14 /35-36; pp 491
18. Agnivesha; Caraka samhita; with Ayurveda Dipika commentary by Chakrapanidatta edited by Vaidya Yadavaji Trikamji Acharya; chaukhamba Surabharati Prakashana Varanasi; reprint 2021; Chikitsa Sthana14 /47; pp 494

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