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TRAYANTHYADI KASHAYAM IN THE MANAGEMENT OF NON- ALCOHOLIC FATTY LIVER DISEASE (NAFLD) – A CASE STUDY

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Abstract : Non-Alcoholic Fatty liver Disease is a term used to describe excessive liver triglyceride accumulation when alcohol consumption is minimal. The progression of steatosis to steato-hepatitis and fibrosis is related to oxidative stress with increased cytokine activity. The development of fat, usually macro vesicular, within the hepatocyte is associated with insulin resistance, obesity, hypertension, glucose intolerance and dyslipidemia.

The causes of NAFLD results in kapha dushti. This further leads to medho dhatwagni mandhya and medhovaha srotho dushti. The excess medas gets sthanasamsraya in yakrut which is rakthavaha srothomoola. As NAFLD is one among the santharpanotha vyadhi, drugs which have the properties of deepana pachana, srothosodhana, vatanulomana and kaphahara can be adopted. Trayanthyadi kashayam given along with murchita ghrita in empty stomach, morning and evening, for a period of 60 days. It is mentioned in Vidradhi-Vridhhi chikitsa adhyaya of Ashtanga Hridayam, possess kaphapithahara, hepatoprotective and antiinflammatory properties. The study proved that Trayanthyadi Kashaya is effective in reducing the liver size, liver enzyme levels and NAFLD fibrosis score.

IndexTerms - Non-Alcoholic fatty liver disease, Trayanthyadi kashayam, murchita ghrita , liver enzymes, NAFLD fibrosis score

INTRODUCTION

Non-Alcoholic Fatty Liver Disease (NAFLD) comprises a spectrum of diseases including simple steatosis, steatohepatitis and cirrhosis. The progression of simple steatosis is slow and it is reversible. The macro vesicular development of fat is associated with other metabolic disorders like diabetes mellitus, obesity, dyslipidaemia and hypertension[1].The estimated global incidence of NAFLD is 47 cases per 1000 population. Prevalence of NAFLD among adults is 32% and is higher among males (40%) than females (26%)[2]. Most of the patients are asymptomatic and the diagnosis is made during evaluation of elevated liver enzymes or by USG findings. There is an increase in hepatocellular carcinoma developed from non-alcoholic fatty liver disease, non-alcoholic steatohepatitis and cirrhosis in the last decade[3].

Treatment includes specific therapy of NAFLD, treatment of comorbidities and treatment of complications[4]. In Ayurveda literature, liver diseases are mentioned mainly under pandu and kamala rogas. A direct reference of accumulation of fat in liver is not seen in classics. A separate chapter for yakrit roga is mentioned in Bhavaprakasha Madhyama khanda. In this chapter it is explained that abhishyandi and vidahi ahara which cause kapha raktha dushti results in yakrit roga,

Due to sedentary lifestyle, lack of exercise, unhealthy eating habits and unhealthy food habits, the lifestyle disorders are increasing in the present era. The treatment of NAFLD includes physical exercise, dietic changes and weight loss. There are no approved medications which can reverse the disease in modern medicine. Hence it is essential to find a safe and effective hepatoprotective remedy from Ayurvedic science. Ayurveda science focusses on disease prevention, root cause of disease, maintenance of health and personalized treatment.

Drugs in Trayanthyadi kashaya are mainly tiktha rasa, laghu ruksha guna, katu vipaka, kapha pitha hara and hepatoprotective. Earlier studies on trayanthyadi kashaya showed its proven effectiveness in hepatoprotective, antihyperglycemic and antihyperlipidemic activities. Murchitha ghritha is added as anupana. The drugs used for murchana removes amadosha. The recent studies showed that murchana process increases the unsaturated fatty acids in ghrita. This combination is cost effective and ingredients are easily available.

CASE HISTORY

A 51-year-old female patient, known case of Diabetes Mellitus (2 years) and Dyslipidemia (15 years) complaints of abdominal distension, loss of appetite and right upper quadrant pain for 6 months. She also gained weight during this period. She took allopathic medications and ddidn't get significant relief in symptoms. Therefore, she consulted in our hospital for better management.

The patient was having 65kg weight and 147cm height (BMI-30.09). Her fasting blood sugar is 159mg/dl, SGOT was 32 U/L, SGPT 50 U/L, alkaline phosphate 68u/l, total protein 6.6 and serum albumin was 4mg/dl, Serum cholesterol was 163mg/dl, Triglyceride 157mg/dl, HDL was 51mg/dl, Haemoglobin was 13gm/dl, platelet count 2.5 lakhs/cumm. She had grade 2 fatty liver and liver size 15.6cm in sonography report and NAFLD fibrosis score[5] was -0.89.

Dashavidha Pareeksha
Prakruti- Kapha Pitta
Vikruti- Kapha
Sara- Madyama
Samhanana- Madyama
Satmya- Mahura rasa
Ahara Shakti and Vyayama Shakti- Madhyama
Vaya- Madhyama

Astavidha Pareeksha
Nadi- Kapha pitta
Mutra- Sadharana
Jivha- Upaliptha
Shabda- Vyaktha
Sparsa -Anushna seetha
Aakruti- Sthoola
Patient has krura koshta and mandagni.

Table:1 Timeline

Time line	Clinical presentation	Medication
Nov 2023	Loss of appetite, right upper quadrant pain, constipation,distension of abdomen	Gandharvahasthadi Kashaya for 15 days
Dec 2023	Loss of appetite, right upper quadrant pain persist. Started taking Trayanthyadi Kashaya with murchitha ghritha	Trayanthyadi Kashaya (48ml) with murchitha ghrita anupana- empty stomach, morning and evening
Jan 2024	Pain reduced, Appetite improved	Medication continued for another one month
Feb 2024	Got improvement in usg finding and fibrosis score. BMI reduced.	Medication stopped

DIAGNOSTIC ASSESSMENT

The diagnosis of NAFLD requires ultrasound imaging. NAFLD Fibrosis Score is a simple non-invasive test of fibrosis assessment.

Table 2: Haematological and USG parameters

Lab parameters	Before Treatment	After Treatment
Weight (Kg)	65	63
BMI(kg/m^2)	30.09	29.1
FBS (mg/dl)	159	155
Total cholesterol	163	139
Triglyceride	157	147
HDL Cholesterol	51	51.6
Haemoglobin (gm/dl)	13	13
Platelet Count (L/cumm)	2.50	2.80
SGOT/ ALT(IU/L)	32	30
SGPT/AST(IU/L)	50	48
Alkaline Phosphatase (IU/L)	68	65

Total protein	6.6	7
Albumin g/dl	4	4.6
Ultrasound	Grade2	Grade 1
Liver Size	15.6	13.8
NAFLD fibrosis Score	-0.89	-1.73

THERAPEUTIC INTERVENTION

Trayanthyadi Kashaya is mentioned in Ashtanga Hridayam, Vidradhi Vridhi Chikitsa Adhyaya for treatment of Kamala[6]. It is a commonly practised medicine in the management of liver diseases. Drugs in this formulation are proved to possess hepatoprotective action through various studies. The main ingredients are Trayanthi, Amalaki, Vibeethaki, Hareethaki, Nimba, Katuka, Madhuka, Trivrt, Patola and Masura. Patient was advised to take kashaya by boiling 48 gm of powder in 768ml of water and reduced to 96ml. 48ml of which is taken at morning and evening, 1 hour before food along with 6ml murchita ghrita[7] anupana for a period of 60 days.

OUTCOME OF THE STUDY

Patient was encouraged for regular visits at OPD at an interval of 30 days. USG and fibrosis scoring done before and after the study. She got symptomatic improvement in right upper quadrant pain, constipation, loss of appetite, fatigue and sonographic findings after the treatment.The details of observations are presented in Table 2.

DISCUSSION

In the steatosis stage of NAFLD, kapha and meda sanchaya occurs in yakrit. Later, due to involvement of pitha, paka occurs in the steatohepatitis stage. In the fibrosis stage, vata is mainly involved and in the final stage udara manifests. NAFLD being a santarpanajanya vyadhi involving agnimandhya, srothorodha, mala sanchaya and vata kopa in the samprapthi, deepana pachana srothoshodana, kaphamedo hara, vatanulomana and sopha hara treatment has to be administered.

Trayanthyadi Kashaya is indicated in kamala roga. Trayanthi, Amalaki, Vibeethaki, Hareethaki, Nimba, Katuka, Madhuka, Trivrt, Patola and Masura are the main ingredients of this formulation with ghritha as anupana. Drugs in Trayanthyadi Kashaya are mainly tiktha rasa, laghu ruksha guna, katu vipaka and kapha pitha pradhana tridosha hara. It is having the quality of srotosodhaka and anulomana as a whole. Tiktha rasa has kleda meda upashoshana, lekhana and pitha kapha hara. Laghu ruksha gunas have shoshana, langhana and deepana pachana action.Brahmi and trivrt are indicated in pleeha rogas. Brahmi is nootropic and neuroprotective and sophahara ayurvedic drug Katu, Tikta rasa of trivrit will cause Kapha Shamana and Trivrit being Sukha Virechana Dravya it causes Vata Anulomana, thus its mainly Tridoshashamaka.Patola and katuka are raktha shodhaka.

Katuka is lekhana, trivrit is sotha hara and patola is medohara. Triphala, patola and trivrt have anulomana action.Brahmi having deepana pachana, rasayana, vishaghna, sothahara action. Studies showed that brahmi possess hepatoprotective, antioxidant and anti-lipid peroxidation activity[8]. Triphala are mainly rasayana, medohara and sopha hara. It has lekhana and anulomana action. Studies showed that drugs in triphala are effective in reducing oxidative stress and hepatic injury. Trivrit has sophaghna, pleeha roga hara, and mala vishtambha hara action. Studies shows the hepatoprotective activity of the drug by reducing the liver enzyme levels[9]. Katuka having lekhana, bhedana and deepana properties removes sanchitha dosha and helps in agni deepana. Studies showed that it reduces the hepatotoxicity by activities of the antioxidant enzymes and removes the accumulated lipids in liver[10].

Patola has bhedana, anulomana, medohara and sothaghna karma. Studies shows that it possesses hepatoprotective, hypoglycemic and antioxidant activity[11]. Masura is having jwarahara and kapha pitha hara action. Pharmacological studies show the anti-diabetic and anti-hyperlipidemic activity of masura.

Drugs used in ghrita murchana are tiktha katu rasa, laghu ruksha guna, kapha hara and lekhana. These properties of trial drug help in agnideepana, srothoshodhana, vatanulomana, kapha pitha pradhana tridosha samana. Thus, it helps in removing sanchitha kapha medas in yakrit.Gogrutha possesses the quality of refinement or samskaranuvarthanam. This herbal medicine, in union with Gogrutha, enhances the process of balancing the vata dosha, alleviating inflammation, and to some extent, promoting purification.

CONCLUSION

Kapha medohara and purgative effect of the trial drug contributed in the samprapthi vighatana of disease, in removal of sanchitha mala and detoxification of liver. The hepatoprotective and pitha samaka action of Trayanthyadi kashaya reduces the hepatic damage and prevents further progression of disease. Thus, Trayanthyadi Kashaya protects liver and can be concluded as a drug of choice in NAFLD.

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REFERENCE

1.Dyson JK, Anstee QM, McPherson SNon-alcoholic fatty liver disease: a practical approach to diagnosis and stagingFrontline Gastroenterology 2014;5:211-218

2.Teng ML, Ng CH, Huang DQ, Chan KE, Tan DJ, Lim WH, Yang JD, Tan E, Muthiah MD. Global incidence and prevalence of nonalcoholic fatty liver disease. Clin Mol Hepatol. 2023 Feb;29(Suppl):S32-S42. doi: 10.3350/cmh.2022.0365. Epub 2022 Dec 14. PMID: 36517002; PMCID: PMC10029957.

3.Teng YX, Xie S, Guo PP, Deng ZJ, Zhang ZY, Gao W, Zhang WG, Zhong JH. Hepatocellular Carcinoma in Non-alcoholic Fatty Liver Disease: Current Progresses and Challenges. J Clin Transl Hepatol. 2022 Oct 28;10(5):955-964. doi: 10.14218/JCTH.2021.00586. Epub 2022 May 18. PMID: 36304509; PMCID: PMC9547250.

4.J. Larry Jameson, et al. “Harrison’s Principles of Internal Medicine,” 21st ed., 2:2402. McGraw-Hill Education, 2018.pg 2622

5. Angulo P, Hui JM, Marchesini G, Bugianesi E, George J, Farrell GC, Enders F, Saksena S, Burt AD, Bida JP, Lindor K, Sanderson SO, Lenzi M,Adams LA, Kench J, Therneau TM, Day CP. The NAFLD fibrosis score: a non-invasive system that identifies liver fibrosis in patients with NAFLD. Hepatology. 2007 Apr;45(4):846-54. doi: 10.1002/hep.21496. PMID:17393509. https://pubmed.ncbi.nlm.nih.gov/25625850/

6.Vagbhata. Ashtanga Hridaya. Varanasi Choukamba Surbharati Prakashan, 2011.

7. Shri Govinda Dasji. Bhaisajya Ratnavali. Chaukhambha Sanskrit Sansthan; p. 366.

8. Sumathi T, Nongbri A. Hepatoprotective effect of Bacoside-A, a major constituent of Bacopa monniera Linn. Phytomedicine. 2008 Oct;15(10):901-5. doi: 10.1016/j.phymed.2007.11.020. Epub 2008 Jan 28. PMID: 18222663.

9. Suresh Kumar, S V & Chilakala, Sujatha & Syamala, Jayanth & Nagasudha, B & Mishra, s.H.. (2006). Protective effect of root extract of Operculina turpethum linn. Against paracetamol-induced hepatotoxicity in rats. Indian Journal of Pharmaceutical Sciences. 68. 10.4103/0250-474X.22960.

10. Shetty SN, Mengi S, Vaidya R, Vaidya AD. A study of standardized extracts of Picrorhiza kurroa Royle ex Benth in experimental nonalcoholic fatty liver disease. J Ayurveda Integr Med. 2010 Jul;1(3):203-10. doi: 10.4103/0975-9476.72622. PMID: 21547049; PMCID: PMC3087357.

11. Rai PK, Gupta SK, Srivastava AK, Gupta RK, Watal G. A Scientific Validation of Antihyperglycemic and Antihyperlipidemic Attributes of Trichosanthes dioica. ISRN Pharmacol. 2013 Jul 25;2013:473059. doi: 10.1155/2013/473059. PMID: 23984089; PMCID: PMC3747504.