

Clinical Efficacy of *Chitrakadi Gutika* in Non Alcoholic Fatty Liver Disease- A Case Study

Aparna Chandran^{1*}, L. Mahadevan², Nisha M.G³

¹Final Year P.G Scholar Dept of Kayachikitsa, ²Professor Dept of Kayachikitsa, ³Assistant Professor, Dept of Roga Nidanam, Pankajakasthuri Ayurveda Medical College and PG center, Kattakada, Trivandrum, Kerala

Abstract:

Non Alcoholic Fatty Liver Disease (NAFLD) is a condition defined by excessive fat accumulation in the form of triglycerides in liver. NAFLD can be interpreted as *Santarpanajanya Vyadhi* (Disease caused due to over nourishment) with *Kaphapradhana Tridosha dushti* getting *Sthanasamsraya (localised)* in *Yakrut* (liver). A 37 year old female patient with abdominal discomfort and fatigue since 2 weeks came with an USG showing Grade 1 fatty liver. Patient was advised to take *Chitrakadi Gutika* 2 tablets twice daily after food with *Anupana Takra* (Buttermilk as adjuvant) for 3 months. *Chitrakadi Gutika* is a formulation mentioned in *Caraka Samhita Grahaniroga Chikitsa*, having *Kaphamedohara, Deepana, Pachana* properties. At the end of the study, the fatty infiltration of liver was reverted to normal. The drug *Chitrakadi Gutika* is effective in the management of NAFLD.

Key words: *Anupana Takra, Chitrakadi Gutika*, Liver Function Test, Non Alcoholic Fatty Liver Disease, Prothrombin time, Ultrasonography

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*Corresponding Author:

Dr. Aparna Chandran,

Final Year P.G Scholar, Dept of Kayachikitsa, Pankajakasthuri Ayurveda Medical College and PG center, Kattakada, Trivandrum, Kerala

E-mail : aparnabs94@gmail.com

Introduction:

Non Alcoholic Fatty Liver Disease (NAFLD) is a distinct hepatic condition which is characterised by abnormal fat accumulation in $\geq 5\%$ hepatocytes, in the absence of a secondary cause such as alcohol or drugs. ^[1] Prevalence of the disease is estimated to be around 9-32% in the general Indian population, with higher incidence rate amongst obese and diabetic patients. ^[2] Liver can be compared with *Yakrut* mentioned in Ayurvedic classics as an

important *Koshtanga*. *Yakrut* is the seat of *Ranjaka pitta* and *Mulasthana* (Root) of *Raktavahasrotas* (channels carrying blood). ^[3] NAFLD can be considered as a *Santarpanajanya Vyadhi* with *Kaphapradhana Tridoshadushti* taking *Sthanasamsraya* in *Yakrut*. ^[4]

The *Chitrakadi Gutika* is mentioned in *Caraka Samhitha Chikitsa Stana* 15th chapter *Grahanidosha Chikitsa*. It contains *Chitrakam* (*Plumbago rosea* Linn.), *Pippalimoolam* (*Piper*

longum Linn.), *Sarja Ksharam* (Sodium bicarbonate), *Yava Ksharam* (*Hordeum vulgare* Linn.), *Souvarchala* (Black salt), *Saidhavam* (Rock salt), *Vidam* (Vida salt), *Audbhidam* (Earthern salt), *Samudram* (Common salt), *Shundi* (*Zingiber officinale* Roxb.), *Maricham* (*Piper nigrum* Linn.), *Pippali* (*Piper longum* Linn.), *Hingu* (*Ferula foetida* Regel.), *Ajamoda* (*Apiumleptophyllum*), *Chavya* (*Piper retrofractum* Vahl.), *Dadima rasa* (*Punicagranatum* Linn.). Most of the medicines in *Chitrakadi Gutika* are *Kapha-Vatahara*, *Medohara*, *Deepana* and *Pachana*.^[5]

Non-alcoholic fatty liver disease (NAFLD) is a leading cause of chronic liver disease, and is strongly associated with the metabolic syndrome. NAFLD is an added risk factor for extra hepatic conditions such as Cardio Vascular Diseases (CVD), Chronic Kidney Disease (CKD), Colorectal cancer, Endocrine disorders including Type 2 Diabetes Mellitus, thyroid dysfunction and Osteoporosis. Hence it is necessary to find a feasible solution to this problem.^[6]

Preparation of medicine: Obtain 33.3mg of each drug *Chitrakam* (*Plumbago rosea* Linn.), *Pippalimoolam* (*Piper longum* Linn.), *Sarja Ksharam* (Sodium bicarbonate), *Yava Ksharam* (*Hordeum vulgare* Linn.), *Souvarchala* (Black salt), *Saidhavam* (Rock salt), *Vidam* (Vida salt), *Audbhidam* (Earthern salt), *Samudram* (Common salt), *Shundi* (*Zingiber officinale* Roxb.), *Maricham* (*Piper nigrum* Linn.), *Pippali* (*Piper longum* Linn.), *Hingu* (*Ferula foetida* Regel.), *Ajamoda* (*Apiumleptophyllum*), *Chavya* (*Piper retrofractum* Vahl.), *Dadima rasa* (*Punicagranatum* Linn.), and triturate it and mix with sufficient quantity of *Dadima rasa* and *Gutika* is made measuring 500mg.

Case report:

A 37 year old female patient, who is a doctor by occupation, reported to the Kayachikitsa OPD, Pankajakasthuri Ayurveda Medical College and PG Centre, Kattakada on 15/9/2020 with

complaints of abdominal discomfort and fatigue since 2 weeks. She also carried an USG report dated 16/7/2020 which showed grade 1 fatty liver changes and liver size measuring 17.3cm.

The patient was apparently healthy before 7 years. She was having 4 months amenorrhoea and had abdominal pain for the 2 months and was advised to take USG abdomen. Then she was diagnosed with PCOD, uterine fibroid and NAFLD and was undergo allopathic medication for the same. She got relieved with the menstrual irregularities and stopped her medications 2 months back. Then USG Abdomen was again taken to reveal that the uterine fibroid and the fatty liver changes persisted. 2 weeks back she started to develop fatigue, along with dull abdominal pain and thus came for the better management of the same.

Patient gave H/O Diabetes mellitus since 10 years, polycystic ovarian disease since 7 years, Dyslipidemia since 5 years. She have H/O of two times LSCS.

Abdominal Examinations:

Inspection - centrally placed umbilicus, surgical scar present at lower abdomen no redness or discoloration

Palpation - superficial - no tenderness, no rise in temperature, no rigidity

Deep palpation - liver is palpable and slight tenderness present.

Percussion - tympanic note heard over abdominal area.

Auscultation - normal bowel sounds heard.

In personal history, Appetite - Moderate/good, Allergy - Nil, Addiction - Nil, Bowel - Regular, Bladder - Normal, Diet - mixed diet, excess intake of junk foods frequently, Physical exercise - reduced activities, Sleep - sound.

Therapeutic intervention:

The patient was advised to take 4 tablets (500mg each) *Chitrakadi Gutika* twice daily

after food with *Takra* as *Anupana* for a period of 3 months. Patient was advised to report once in 15 days for uninterrupted feedback.

Observation And Results:

Assessment of result was done on 0th and 91st day adopting gradation (table-1-2) and laboratory investigations. (Table-2). The final result after assement was calculated after treatment as shown in table-3.

Table-1: Gradations on the basis of USG abdomen findings:

USG Grades	Grade features
0	No fatty liver
1	Grade 1 fatty liver Slight diffuse increase in the fine echoes. Liver appears bright as compared to the cortex of the kidney. Normal visualization of diaphragm and intra-hepatic vessel borders.
2	Grade 2 fatty liver Moderate diffuse increase in fine echoes. Slightly impaired visualization of the intra-hepatic vessels and diaphragm
3	Grade 3 fatty liver Marked increase in the fine echoes. Poor or no visualization of intra-hepatic vessel borders, diaphragm and the vessels.

Table-2: Assessment of result:

Assessment Prameter	Before Treatment (15/9/2020)	After Treatment (16/12/2020)
USG GRADING	Mild hepatomegaly with Grade 1 fatty liver	No fatty liver
LFT	T.Bilirubin – 0.6mg/dl D.Bilirubin – 0.2 mg/dl I.Bilirubin – 0.4 mg/dl SGOT- 14 IU/L SGPT- 17 IU/L ALP-179 U/L T.Protein- 6.9 g/dl S.Albumin – 4.3 g/dl S.Globulin – 2.6 g/dl A/G Ratio – 1.6:1	T.Bilirubin – 0.5mg/dl D.Bilirubin – 0.1 mg/dl I.Bilirubin – 0.4mg/dl SGOT- 18 IU/L SGPT- 13IU/L ALP-151U/L T.Protein- 6.8 g/dl S.Albumin – 3.8 g/dl S.Globulin – 3.0 g/dl A/G Ratio – 1.2:1
Prothrombin Time	Test – 11.9sec Control – 12.4 sec INR- 0.96	Test -12.9 sec Control – 13.4 sec INR – 0.91

Table-3: Effet of therapy:

Subjective Parameters	Before Treatment (15/9/2020)	After Treatment (16/12/2020)
Fattigue	Present	Absent
Anorexia	Absent	Absent
Appetite	Moderate/Good	Moderate/Good
Dull or aching pain in top right of the abdomen	Present	Absent

Discussion:

NAFLD is one of the commonest disease that is present worldwide. NAFLD has been projected within the next 20 years to become the major cause of liver related morbidity and mortality as well as a leading indication for liver transplantation. Hence the need of timely intervention can be well understood. Insulin resistance, obesity, metabolic syndrome, oxidative stress and dietary factors are associated with the development of NAFLD.

While understanding such diseases through Ayurveda, we must consider the *Nidana* (etiology), *Dosha* and *Dooshya* (tissue elements and waste products) involved in the disease progression and thus NAFLD can be considered under the *Santarpanajanyavyadhi*. Due to the *Aharaja* (dietary) and *Viharaja* (regimental) *Nidana*, *Kaphadoshakopa* (increase in *Kapha Dosha*) occurs in the body. This leads to *Jatharagnimandya* (decrease in digestive fire) and *Ama* formation (product of improper digestion and metabolism). As a result *Dooshita rasa* (undigested chyle tissue element) is formed and the successive *Dhatu* (tissue element) formation is impaired. The vitiated *Raktadhatu* (blood tissue element) vitiates the *Yakrut* as it is the *Srotomoola* and due to *Srotorodha* (obstruction to channels of circulation) the excessively formed vitiated *Vasa* gets deposited in the *Yakrut* and results in NAFLD.

Treatment must aim at bringing back the normalcy of vitiated *Doshas*, along with removal of causative factors. *Mandagni KaphaMedoDushti* at *Mulasthanas* of *RaktavahaSrotas*, *Srotorodha* and *Vatakopa* must be considered in treatment. Therefore the treatment should aim at *Agnideepana*, *Amapachana*, *KaphaMedoAnilapaha* and *Srotoshodhana*. The drugs suitable here are *Katu*(pungent), *Tikta*(bitter), *Kashaya*(astringent) *rasa pradhana* (taste predominant). They help in *Langhana* as well as *Pachana*. The treatment required is *Apatharpana*(non nourishing), which is

attained by decreasing *Prithvi* and *Jalamahabhoota*. The drugs which increase the power of *Agni* and reduce *Kapha, Meda* and *Ama* are selected for the management of NAFLD.

Probable Mode of Action of Chitrakadi Gutika:

Here in *Chitrakadi Gutika* majority of the ingredients are *Katu rasa* predominant, *Laghu* (light), *Ruksha*(dry), *Tikshnaguna* (sharp), *Ushnavirya* (hot potency), *Katuvipaka* (pungent in taste at the time of metabolism) and hence mostly *Kaphavatahara* in action. Considering the action of *Chitrakadi Gutika* at the level of *Dosha*, Due to *Katu- Tiktha Rasa* predominance, *Katuvipaka*, *Ushna Virya* and *Laghu, Tikshna gunas*, it counteracts the aggravated *Kapha*. While the *Ushna Virya* and *Tikshna, Snigdha* helps in subsiding the aggravated *Vata*. The *Madhura rasa, Snigdha* and *Anushnasitavirya* even though present in minority, however helps in balancing the *Pitta dosha*. While looking into the *Dhatu* involvement in NAFLD, we can understand that the *Rasa dhatu* is primarily involved. Here *TiktaKatu rasa, Laghu, Tikshnaguna* and *Ushnavirya* of the drug helps in *Amapachana* and *Agnideepana* and hence helps in the proper *Rasa dhatu* formation. Apart from this as *Mamsa* and *Medodhatu* also have *Asrayaasrayi* relation with *Kaphadosha*, the *Kaphakaranidanans* vitiates the *Mamsa* and *Medodhatu* too. Therefore the *Katu rasa, Ushna Virya* and *Laghu Guna* of the formulation also plays a role in bringing back these *Dhatu*s to a normal state.

At the level of *Agni*, we can understand that all the drugs in *Chitrakadi Gutika* have *Deepana* property and *Pachana* property. The *Katu, Tikta rasa, Laghu* and *Tikshna guna* helps in stimulating the *Jatharagni*. This signifies the role of the formulation in *Agni deepana*. While understanding the *Virya* predominance also we can see that the *Ushna Virya* helps in

stimulating the *Jatharagni*, which in turn stimulates the *Bhootagni* and *Dhatvagni*.

With virtue of the *Amapachana*, all the *Deepana*, *Pachana*, *Tikshna*, *Sukshma* properties and *Ushnavirya* together helps in removing the *Srotorodha* caused by *Ama*. The *Anulomana* property of the formulation helps in relieving the *Vata* that is aggravated in the *Koshta*, Thus by virtue all these properties, it helps in *Sampraptivighattana* at all the levels of progression of the disease. Here *Takra* (buttermilk) was used as *Anupana* (adjuvant). *Takra* acts as *Tridoshagna* by means of its different guna. It has *Madhura* (sweet), *Amla* (sour), *Kashaya* (pungent) *rasa* and *Madhuravipaka* and *Ushnavirya*. It possess *Deepana*, *Grahi* (hardens the stools) and *Laghutva* (light for digestion) property and hence would act as one of the best possible *Anupana* in the condition of NAFLD.

Conclusion:

The patient underwent the treatment for 90 days and significant results were obtained in subjective and objective criteria. Thus it can be concluded that *Chitrakadi Gutika* has significant role in the management of NAFLD. The study can be carried out in larger samples for substantiating the results.

Limitation of study:

It was difficult to maintain the solid consistency of *Gutika* for long duration, due to the moisture content of salts.

Consent of patient:

Consent from the patient has been taken before treatment for treatment and also for publication without disclosing the identity of patient.

References:

1. Younossi ZM, Koenig AB, Abdelatif D, et al. Global epidemiology of nonalcoholic fatty liver disease-Meta-analytic assessment of prevalence, incidence, and outcomes. *Hepatology*. 2016;64:73–84.
2. Singh SP, Nayak S, Swain M, et al. Prevalence of non-alcoholic fatty liver disease in coastal eastern India: a preliminary ultrasonographic survey. *Indian J Gastroenterol*. 2004;25:76-9.
3. Acharya YT. *Sushruta Samhita*. Vranaprasna. *Sutrasthanam* 21/10. Varanasi. ChowkambaKrishnadas Academy Publications, 3rd ed. 2014. p-101.
4. Agnivesha. *Santarpaniyamadhyayam*. Vaidya Dipika Commentary by Cakrapanidatta *Sutrasthanm* 23/1. 2nd ed. Varanasi. Chowkhamba Publications 2014. p-395.
5. Agnivesha. *Grahanidoshachikitsitamadhya yam*. Dipika Commentary by Cakrapanidatta *Chikitsasthanm* 15/96-97 2nd ed. Varanasi. Chowkhamba Publications 2014. p.520.
6. Bataller R, Rombouts K, Altamirano J, Marra F. Fibrosis in alcoholic and nonalcoholicsteatohepatitis. *Best Pract Res ClinGastroenterol*. 2011;25:231-244.

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