Int J Ayu Pharm Chem
ISSN 2350-0204
www.ijapc.com

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A Clinical Study on the Efficacy of *Tryūṣṇādi Gana* in the Management of *Medo Vriddhi* (Hyperlipidemia)

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ABSTRACT

In today's era everybody is busy in his /her own work to achieve the goal of his /her life. Due to artificial lifestyle many people are suffering from various diseases. *Medo vriddhi*(Hyperlipidemia) is one of them & it is big challenge worldwide. Due to the lack of physical exercise, mental stress, overeating, sedentary lifestyle *Medo vriddhi* is commonly observed. The present study was carried out to assess the efficacy of *Tryūṣṇādi Gana* on *Medo vriddhi* (Hyperlipidemia). In entire study 90 patients were enrolled from OPD and IPD patients of Govt. Ayurvedic College & Hospital, Guwahati, Assam. Only *Medo vriddhi* subjects were selected by simple randomized method & others were excluded. In the management of *medo vriddhi*, many *acharyas* have mentioned various formulations among which we selected *Tryūṣṇādi Gana* for the study which was found to be very significant. All the patients were treated with *Tryūṣṇādi Gana* for 3 months with follow up after one month. Lipid profile was performed in all patients before & after treatment. Result of therapy was evaluated on the basis of improvement in symptom & biochemical parameter (lipid profile). All the concerned approvals were obtained and data was analyzed under statistical parameters. A significant reduction of cholesterol levels, Triglycerides, VLDL, CHO/HDL ratio and highly significant reduction of LDL and LDL/HDL ratio was found. This research also proved the major role of *Agni* and *Ama* in pathogenesis of Hyperlipidemia, and all the drugs having *Dipana*, *Pachana*, *Ama nashaka*, *Kapha-Medohara*, and *Srotoshodhaks* quality will be highly effective. Conclusion of this study is *Tryūṣṇādi Gana* is effective on *Medo vriddhi* (Hyperlipidemia).

Key Words *Hyperlipidemia, Lipids, Medo vriddhi, Tryūṣṇādi Gana*

Received 20th April 22 Accepted 10th May 22 Published 10th May 2022

INTRODUCTION

Hyperlipidemia is emerging as major health problem in the modern era. Hyperlipidemia leads to coronary artery disease, myocardial infarction and cerebrovascular accidents (CVA). In India, persons suffering from CHD have increased in last 20 years. In South India CHD incidence is 7% in rural areas and 13% in urban areas. Ayurveda, the ancient science of life is being increasingly accepted by the world at large for its relevance and adoptability to the modern science. As we moved into rapid modernization, the

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lifestyle of an individual has become sedentary along with lack of exercise and there is increased popularity of fast foods leading to impairment of metabolism in an individual making him prone to series of disorders called as lifestyle disorders. Hyperlipidemia is one such disorder where there is an abnormally elevated level of any one, or all lipids and lipoproteins in the blood. It is most common form of "Dyslipidemia". Lipids consist of fats, waxes, sterols, monoglycerides, phospholipids, and fat-soluble vitamins and minerals. Since lipids are hydrophobic i.e. insoluble in water, these are (e.g. cholesterol) transported in the blood plasma within protein particles (lipoproteins). It is of utmost significance because it leads to atherosclerosis of vessels (arterial walls) leading to vascular accidents like Cerebro vascular or Coronary Artery Diseases. More than half of the Coronary Heart Diseases (CHD) are attributable to abnormalities in the levels and metabolism of plasma lipids and lipoproteins. However, elevated lipoprotein levels in most patients with CHD reflect the adverse impact of sedentary lifestyle, excess body weight, and diets high in total and saturated fat superimposed on a genetic background that confers susceptibility to increased circulating lipids. According to WHO, raised serum cholesterol levels is one of the top ten causes of death throughout the world. Several modern drugs are available for the management of Hyperlipidemia where most of them are potentially toxic, costly and are contraindicated in hepatic or renal impairment, gall bladder disease and pregnancy. Atorvastatin is one such a drug of choice which is highly used and recommended in hyperlipidemia. It has shown very good results but also responsible for many side effects like myositis, joint pain, stomach upset, liver damage and many more. Here, Ayurveda can intervene by modifying the risk factors aiming at the prevention. It can be included under *santarpanajanyavyadhi* as "*Medoroga*". It is a condition caused by derangement of *agni*, leads to *amarasa*, there is *medodhatvagnimandya* leading to improper formation of *medodhatu* in excess and if not arrested further results in *sthoulya* and other *santarpanjanya vyadhi's* . Lack of physical exercise and indulging in *Kaphavardhaka ahara* leads to *Medo vriddhi* and hence causes "*Medo roga*". The morbid accumulation of *kapha* and *meda* tends to get adhered to the vessel wall causing its thickening, tortuosity, stiffness as well as narrowing. This change in the vessel wall is referred as *Dhamani pratichaya* (thrombosis/ atherosclerosis). Thus considering above facts, this study is intended in treating the Hyperlipidemia with *Tryūṣṇādi Gana* with textual reference from Sushrut Samhita .

a)Justification of the proposed research work:

Although various research works have been conducted on *Medoroga* and *Medo vridhhi*(Hyperlipidemia), this topic have been selected for research as it is the most common disease of the today's society having a high incidence rate in high economic group with sedentary lifestyle. In the present study *Tryūṣṇādi*

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Gana is taken for clinical trial. *Tryushana or Trikatu* literally means three specific *Katu dravyas* (pungent substances), i.e. *Pippali* (long pepper), *Maricha* (black pepper) and *Sunthi* (ginger) and coincidentally, these are used frequently as spices in Indian foods. *Tryūṣṇādi Gana* has been described by *Sushruta* as *Kaphamedoghna* (alleviate *Kapha dosha*, viz. lipids & fats) and *Deepana* (appetizer), which means that it removes the *Kapha dosha* and *Meda* and improves the *Agni* (metabolism)[1]. *Vagbhatta* has also recommends *Trikatu* in the treatment of conditions involving both *Meda* and *Kapha*[2]. *Sharangadhara* has also described the pharmacological actions of *Trikatu churna* (powdered form) and labelled it as *Sleshma-Medoghna*, i.e. it alleviates *Kapha dosha* and *Medo dosha* (lipids disorders). It is also having properties of *Deepana* (enlighten the *Agni*), *Paachana* (enhances digestive power), *Kleda-Meda Shoshaka* (scrap out excessive *Meda* and *Kapha*), *Srotovishodhaka* (open the micro channels) and potent in *Lekhana* property. So, by all these properties it also helps in scrapping of excessive *Meda* and *Kapha* and helps in breakage of pathogenesis of disease.

b) Lacunae in the present knowledge/understanding:

Hyperlipidemia is a major risk factor of coronary heart disease. Currently available hypolipidemic drugs (statins) have been associated with a number of side effects[3]. Patients on treatment with crystalline niacin or extended-release niacin showed significant elevation in ALT and risk of hepatotoxicity is much greater with slow-release niacin[4]. Increases in plasma creatinine from 15% to 20% are common in fibrate-treated patients and more significant increases can occur in patients with underlying renal disease[5] . Hence, there has been pursuit for new safe and effective drug for Hyperlipidemia. Herbs have been used as a food and for medicinal purpose for centuries. Research interest has focused on various herbs that possess hypolipidemic effect that may be helpful adjunct in reducing the risks of CVD. Keeping all the fact in mind I have taken up the proposed study on "A Clinical Study on the efficacy of *Tryūṣṇādi Gana* in the management of *Medo vridhhi*(Hyperlipidemia)"

AIMS AND OBJECTIVES

Aim

To study the effect of *Tryūṣṇādi Gana* on the management of *Medo vridhhi*(Hyperlipidemia)

Objectives

1. To study the aetiopathogenesis of Hyperlipidemia and work out the *Ayurvedic* correlations.
2. To evaluate the efficacy of *Tryūṣṇādi Gana* in the management of Hyperlipidemia by using various scientific parameters.
3. To provide a reliable, cost effective *Ayurvedic* treatment for Hyperlipidemia.

MATERIALS AND METHODS

The study is Randomized uncontrolled comparative clinical study and carried out in OPD and IPD patients of Govt. Ayurvedic

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College & Hospital, Guwahati, Assam for 90 days. Total 90 patients were registered for the trial and treated with *Tryūṣṇādi Gana.* All the concerned approvals were obtained.

Collection of the raw material:

The raw material i.e. fruits of *Piper longum* (*Pippali*), fruits of *Piper nigrum* (*Marica*) and rhizomes of *Zingiber officinalis* (*Shunthi*) have been collected from the different parts of Kamrup (Rural) District spefcifically botanical garden of Gauhati University.

Identification and authentication of raw material:

The raw material i.e. fruits of *Piper longum* (*pippali*), fruits of *Piper nigrum* (*marica*) and rhizomes of *Zingiber officinalis* (*shunthi*) were identified and authenticated by the Botany department, Gauhati University.

Preparation of the Trial drug:

Preparation of the trial drug was done in the Department of *Rasashala*, Govt. Ayurvedic College under the guidance of supervisor and officer in charge of *Rasashala*. The drug was prepared observing all the classical instruction. Then the drug was collected and preserved.

Standardization of the drug

Samples of all the raw materials along with the prepared drug were sent to Drug Testing Laboratory, Govt. Ayurvedic College for testing the standardization. Trial drugs hardness, disintegration time, dissolving time etc. parameter was checked[6].

Selection Criteria:

Inclusion Criteria:

- Age- 20 – 60 years
- Sex- Both the sexes
- Both obese and non-obese patients were selected for the study
- Patient having the classical sign and symptoms of Hyperlipidemia
- Subjects having all or at least any one of the lipid profile above normal range were selected for the study.

Exclusion Criteria:

- Age below 20 years and above 60 years
- Patient having any other systemic disorder and complications.
- Patient having severe diabetes and heart diseases.
- Hereditary origin and endocrinal involvement.
- Case having medical emergencies.
- Pregnant women lactating mothers
- Hypertension

Diagnostic Investigation:

Lipid profile

1) Total serum Cholesterol
2) Triglyceride
3) Low density lipid(LDL)
4) High density lipid(HDL)
5) Very low density lipid(VLDL)

Methodology:

The study is initiated with literary review of disease and the drug with reference to Ayurvedic concept and modern concept. Thus the help of reference books, past research works, various journals and internet are taken. . The trial drug is

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given to patient after analytical study of the prepared drug in the standardized Drug Testing Laboratory, Govt. Ayurvedic College and Hospital. For clinical trial 90 patients are selected.

Sampling:

Simple random sampling technique.

Duration of Study

The groups under study exposed to the respective treatment for a period of 3 months and follow up are given in every one month interval.

Experiment design:

Multi group design is undertaken to correlate the clinical effect of trial drug as well as diet and regimen before and after treatment.

Study variables:

Subjective parameter

- *Ashaktahsarvakarmasu* (Difficulty in routine acitivities)
- *Kshudrashwasa* (Dyspnoea)
- *Utsahahani* (Lethargic)
- *Angagaurava* (Heaviness in body parts)
- *Daurbalya* (Weakness/Decreased physical activity)
- *Swedhadikya*
- *Trishna* (Increased Thirst)
- *Nidradikya* (Increased Sleep)
- *AlpaMethunah* (Decreased sexual desire)

Objective parameter

Lipid profile before and after treatment.

Assessment Criteria[7]:

The improvement in patient was assessed mainly on the basis of following points.

1. Decreased level of lipid components.

2. Improvement in sign & symptoms of disease. The improvement in sign & symptoms were assessed by adopting score method which are mentioned in table 1, 2 and 3.

Table 1 Shwasa (Dyspnoea)

Sr. No	Symptom	Grade
1	Absent	0
2	Present after heavy work, relived soon & tolerable	1
3	After moderate work, relived later & tolerable	2
4	After little work, relived later & tolerable	3
5	After little work, relived later & intolerable	4

Table 2 Atpipasa (Excessive intake of water)

Sr. No	Symptom	Grade
1.	Normal thirst	0
2.	Up to 1liter excess intake of water	1
3.	Up to 1 to 2 litre excess intake of water	2
4.	Up to 2 to 3 litre excess intake of water	3
5.	More than 3 litre excess intake of water	4

Table 3 Other symptom

Sr. No	Symptom	Grade
1.	Absent	0
2.	Mild	1
3.	Moderate	2
4.	Marked	3
5.	Severe	4

Considering the overall improvement shown by patients in signs & symptoms the total effect of therapy was assessed in terms of complete remission, improved, moderately improved, mildly improved, & unchanged as follows:

1. Complete remission: Complete relief 100% in sign & symptoms was taken as complete remission. 2. Markedly improved: patient showing improvement more than 75% in sign & symptoms was taken as markedly improved.

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3. Moderately improved: patient showing improvement up to 50 to 75 % in sign & symptoms was taken as moderately improved.

4. Mildly improved: patient showing improvement up to 25 to 50 % in sign & symptoms was taken as mildly improved.

5. Unchanged: below 25% relief in signs & symptoms of *Medovriddhi.*

Intervention details:

Details of medication and treatment plan is mentioned in table no 4.

Table 4 Details of medication and treatment plan

Intervention details	Group A(Trial Group)	Group B(Trial Group)	Group C (Trial Group)
Drug	*Tryushana*	*Tryushana* with diet control	*Tryushana* with diet control along with exercise
Form	*Churna*	*Churna*	*Churna*
Dose	500 mg twice daily	500 mg twice daily	500 mg twice daily
Mode of administration	Oral	Oral	Oral
Time of administration	After meal	After meal	After meal
Anupan	Honey	Honey	Honey
Duration	3 month	3 month	3 month

Statistical Method[8]

The data was collected before & after intervention and assessed statistically by using MANOVA test. Analysis was done by using Service product for statistical solution (SPSS) for windows software.

Ethical Review

Ethical clearance has been obtained from the Institutional Ethical Committee (IEC) of Govt. Ayurvedic College & Hospital, Jalukbari, Guwahati.

CONCLUSION

The effects of the study was assumed to be fruitful for the society to maintain a healthy life style and the drug is assumed to be effective in the management of Hyperlipidemia. The exact result and conclusion will be drawn after completion of the trial.

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