ORIGINAL RESEARCH PAPER

Ayurveda

# COMPARISON ON THE EFFECT OF TRYUSHANADI GUGGULU AND AMRUTHADI GUGGULU IN DYSLIPIDEMIA

**KEY WORDS:** Dyslipidemia, Tryushanadi guggulu, Amruthadi guggulu, Agnimandya

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**ABSTRACT**

Dyslipidemia is characterised by disorders in lipid metabolism and it is an independent and modifiable risk factor for Coronary Artery Diseases. Dyslipidemia leads to changes in serum lipoprotein levels. Dyslipidemia can be considered as a condition where *Kapha, Agni,Rasa* and *Medas* are Pathologically modified due to *Agnimandya and Ahara-Viharas.* The Study drug, Tryushanadi guggulu and the comparison drug Amruthadi guggulu possess *Kaphamedohara, deepana, pachana, ruksha* and *lekhana* properties. The study drug *Tryushanadi guggulu* and *Amruthadi guggulu* was given to the study group and comparison group for a period of two months. Statistical analysis revealed no significant difference in action of Tryushanadi guggulu and Amruthadi guggulu in borderline elevation of Lipid profile.

## INTRODUCTION

Non communicable diseases are the top cause of death worldwide, killing more than 36 million people in 2008.Cardiovascular diseases (CVD) are the most prevalent cause of death and disability in both developed as well as developing countries.

Disorders of lipoprotein metabolism are collectively referred to as "dyslipidemias." Dyslipidemias are generally characterized clinically by increased plasma levels of cholesterol, triglycerides, or both, variably accompanied by reduced levels of HDL cholesterol[1] .Dyslipidemia is an important modifiable risk factor for coronary artery disease. Research over the past 4 decades has consistently shown the burden of dyslipidemia to be very high in terms of morbidity, mortality, and medical expenses.

In Ayurveda, dyslipidemia can be corelated as a condition in which *kapha, medas, rasa* and *agni* are transformed pathologically. Treatment for *Medoroga* and *Sthoulya* can be adopted for dyslipidemia. The study drugs selected here are *Tryushanadi Guggulu* mentioned in *Bhavaprakasha*, *Medorogaadhikara*[2] and *Amrutadiguggulu* mentioned in *Cakradatta sthoulyachikitsa*[3]. Study aims to clinically evaluate and compare the effect of both the drugs and to record the result scientifically for future research purposes.

### Dyslipidemia – Ayurvedic Perspective

*Agni* is responsible for all the metabolic activities taking place in the body[4].

Metabolic processes maintain the normal quantity, quality, function of the *dosha* and *dhatu* and derangement of *agni* can bring about improper metabolism.

The cholesterol and triglycerides formed due to improper metabolism when excess and failed to assimilate, can be compared to the *ama* formed due to *dhatwagnimandhya.*

*Medo-dhatwagnimandya* leads to faulty formation of *sthoolabhaga* and *kitta*.

*Beejadushti* itself is indicative of *sahaja-agnimandya* predisposing the individual to improper *dhatuparinama* leading to its accumulation of *mala bhavas* in the *srothas*, making the individual susceptible for development of *Medoroga*.

## MATERIALS AND METHODS

### Preparation Of Study Drug

*TryushanadiGuggulu*

- The formulation consists of 8 drugs.
- First Seven ingredients in fine powder form added to purified *guggulu* .One part each of *sundi, maricha, pippali , musta, chitraka, vidanga,* vacha and *guggulu* seven part is taken.
- *Guggulu* was purified using *Triphala Kwatha* in *dolayantra*[5].
- *Chitraka* was purified in *churnodaka* (lime water)[6].
- *Guggulu* is added with 2 times of water and processed on fire. When *guggulu* attains proper *paaka* rest of the ingredients in powder form were added mixed well and rolled in to gutikas each weighing 500mg.

***AmrutadiGuggulu***

**Consists of eight drugs:**

*Guduchi churna* – 1 part , *Elachurna - 2 parts, Vidangachurna - 3parts*

*Kutajachurna* - 4 parts, *Vibheetakachurna* – 5 parts

*Hareetakichurna - 6 parts, Amalakichurna* -7 parts,

*Sudhaguggulu* – 8 parts .

- Prepared pills each of 500mg weight.

### CLINICAL TRIAL

**Study design:** Non randomised control trial.

**Study setting**

OPD and IPD of Department of Kayachikitsa, Govt. Ayurveda College Hospital, Thiruvananthapuram

### INCLUSION CRITERIA

Patients of both sexes aged 30-70 years having Total cholesterol level between 200- 239mg/dl or Triglyceride level 150-199mg/dl or LDL level 130-159mg/dl.

### Exclusion criteria

- Known cases of medication for coronary artery disease, cerebrovascular accidents, any type of neoplasm, renal and hepatic disorders and hypothyroidism.
- Patients under any medication for dyslipidemia.
- Patients on prolonged medication with corticosteroids or antidepressants.
- Pregnancy and lactation.

### Sampling technique

44 consecutive cases satisfying inclusion and exclusion criteria was selected for the study. Patients were categorized into two groups –study group and comparison group. Thus 22 patients will come under each group.

**Procedure**

Patients with elevated lipid levels in blood investigations came to the study setting was selected in non-randomised method. The selected subjects satisfying the inclusion and exclusion criteria were subjected to detailed clinical examination and laboratory investigations. Study group was given *Tryushanadiguggulu and* comparative group was given *Amruthadi guggulu* for 60 days.

**Dose Of The Drug**: Each 2 gutikas 3 times daily half hour before food with luke warm water.

**Outcome Variables** : Changes in Total cholesterol, Triglyceride HDL, VLDL and LDL values were recorded.

**STATISTICAL ANALYSIS**

Pre and post comparison of quantitative variables assessed by Paired t test.

**RESULT**

**Effectiveness of Treatment on Total Cholesterol**

**Table 1 : Data Related to Total Cholesterol**

| | Total Cholesterol | | | | t | p |
|---|---|---|---|---|---|---|
| | *Amruthadiguggulu* | | *Tryushanadiguggulu* | | | |
| | Mean | Standard Deviation | Mean | Standard Deviation | | |
| Before Treatment | 227.1 | 10.0 | 223.7 | 9.9 | 1.068 | 0.292 |
| After Treatment | 220.8 | 25.1 | 212.2 | 24.2 | 1.099 | 0.279 |
| After Follow up | 224.4 | 23.2 | 219.4 | 26.7 | 0.632 | 0.531 |

The p value for the change in total cholesterol is .279. p value > .05. The change in total cholesterol is statistically not significant in both groups.

**Table 2 Between Group Comparison For Total Cholestrol**

| Paired Comparison P values | *Amruthadiguggulu* | *Tryushanadiguggulu* |
|---|---|---|
| BT vs AT | 0.200 | 0.010 |
| BT vs AF | 0.600 | 0.384 |

Between groups value for Tryushanadiguggulu after treatment is .010. the p value <.05. On comparing before treatment and after treatment values for Tryushanadiguggulu is statistically significant for change in total cholestrol.

**Effectiveness of Treatment on HDL**

**Table 3 Data Related To Respomse To HDL**

| | HDL | | | | | |
|---|---|---|---|---|---|---|
| | *Amruthadiguggulu* | | *Tryushanadiguggulu* | | | |
| | Mean | Standard Deviation | Mean | Standard Deviation | t | P |
| Before Treatment | 53.9 | 12.7 | 46.9 | 8.2 | 2.067 | 0.046 |
| After Treatment | 50.3 | 10.0 | 48.0 | 8.0 | 0.786 | 0.437 |
| After Follow up | 53.0 | 10.4 | 47.3 | 6.3 | 2.107 | 0.042 |

Mean HDL in the study group is 46.9+/- 8.2 before treatment, 48.0+/- 8.0 after treatment with p value > .05 which is not significant statistically. The mean value of HDL in the comparison group before treatment is 53.9 +/- 12.7 and after treatment is 50.3+/- 10.0 with p value .042.

**Table 4 Between Group Comparison For HDL**

| Paired comparison p values | *AMRUTHADI GUGGULU* | *TRYUSHANADI GUGGULU* |
|---|---|---|
| BT vs AT | 0.013 | 0.459 |
| BT vs AF | 0.606 | 0.791 |

The paired comparison p values for between group assessment of Tryushanadiguggulu and Amruthadiguggulu shows p value .013 for after treatment values of changes in HDL for Amruthadiguggulu which shows a statistically significant reduction in HDL.

**Effectiveness of Treatment on LDL**

**Table 5 Data Related To LDL**

| | LDL | | | | t | p |
|---|---|---|---|---|---|---|
| | *AMRUTHADI GUGGULU* | | *TRYUSHANADI GUGGULU* | | | |
| | Mean | Sd | mean | sd | | |
| Before Treatment | 139.4 | 14.6 | 147.0 | 11.7 | -1.794 | 0.081 |
| After Treatment | 140.1 | 23.5 | 136.1 | 25.1 | 0.517 | 0.608 |
| After Follow up | 144.9 | 22.1 | 139.6 | 35.1 | 0.564 | 0.576 |

The results are not statistically significant.

**Table 6 Between Group comparison For LDL**

| Paired comparison p values | *AMRUTHADI GUGGULU* | *TRYUSHANADI GUGGULU* |
|---|---|---|
| BT vs AT | 0.863 | 0.020 |
| BT vs AF | 0.248 | 0.249 |

The changes in LDL for both study group and comparison group is not statistically significant.

**Effectiveness of Treatment on VLDL**

Paired comparison p values of VLDL for both groups >.05 and between group analysis after treatment and after follow up for both groups not statistically significant.

**Effectiveness of Treatment on Triglycerides**

**Table 7 Data Related To Triglycerides**

| | TRIGLYCERIDES | | | | t | P |
|---|---|---|---|---|---|---|
| | *AMRUTHADI GUGGULU* | | *TRYUSHANADI GUGGULU* | | | |
| | Mean | sd | mean | Sd | | |
| Before Treatment | 158.8 | 60.1 | 141.4 | 35.2 | 1.116 | 0.272 |
| After Treatment | 164.8 | 85.9 | 140.6 | 30.1 | 1.185 | 0.243 |
| After Follow up | 147.7 | 50.4 | 128.2 | 28.4 | 1.502 | 0.142 |

The p values >.05 and the results are not statistically significant.

**Table 8 Between Group Comparison For Triglycerides**

| Paired comparison p values | *AMRUTHADI GUGGULU* | *TRYUSHANADI GUGGULU* |
|---|---|---|
| BT vs AT | 0.655 | 0.925 |
| BT vs AF | 0.292 | 0.176 |

Paired comparison p values of both group >.05 and the results are not statistically significant.

**DISCUSSION**

This study attempts to compare the effects of *Tryushanadiguggulu* and *Amruthadiguggulu* for further utilisation of therapeutic management for Dyslipidemia apart from ensuring the safety and tolerability of the drug.

- Gastritis was noted in four patients.
- Negative response for the study may be due to borderline elevations of lipid profile selected for inclusion criteria and the smaller sample sizes for the study conducted.
- Study should be conducted in dietary related, inherited and hepatic level Dyslipidemia as three separate groups with the same drug to asses any difference in the mode of action.

**CONCLUSION**

There is no statistically significant result obtained for the present study. Only between group comparison value for Total cholesterol of study group who were given *Tryushanadi* guggulu showed a positive response, but is not comparable.

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