

## DYSLIPIDEMIA MANAGEMENT THROUGH THE SIDDHA FORMULATION CAPSULE ARJUN FORTE - A CASE SERIES

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**Abstract:** Siddha medicine is an ancient traditional system of medicine healing 4448 diseases in the southern part of India, especially Tamilnadu, Srilanka and Malaysia. Dyslipidemia is a condition which is associated with several morbid manifestations. Generally, dyslipidemia does not have any obvious symptoms but they are usually discovered at routine investigation. But it is a leading cause of death due to atherosclerosis, myocardial infarction and ischemic stroke. Purpose of the study was to treat dyslipidemia with Arjun forte capsule, Siddha oral medicine. Here we present a case that was success with siddha management. Four female patients came to my outpatient department of Santhigiri Siddha Medical College and Hospital, Trivandrum, Kerala, with complaints of difficulty in breathing, no other chronic illness such as Diabetes mellitus/Hypertension. The Lab primary report revealed high levels of serum cholesterol LDL, and Triglycerides. No treatment has been taken so far regarding this issue. I was given 2month treatment of capsule Arjun Forte as an internal medicine along with diet and lifestyle modifications. Excellent results observed ultimately. The amount of lipids in blood came to normal in a lab report and symptoms of difficulty in breathing at night were completely relieved. So, It could be concluded as efficacy of Arjun Forte excellent in treating dyslipidemia.

**Keywords:** Siddha management, Dyslipidemia, Capsule-arjun forte, Specific diet, Metabolic dysfunction, Lifestyle disorders, Herbo mineral drug.

### INTRODUCTION

Siddha is an ancient traditional system of medicine for health and peaceful living. Its origin goes to back B.C 10,000 to B.C 4,000 as per the textual and archaeological evidence which indicates the remote antiquity of the Tamil civilization of submerged land *Kumarikandam* (Lemuria). Siddha formulations of medicine are made up of *panchapoothas* theory [1].

Dyslipidemia is an increase in one or more of the plasma lipids, including triglycerides, cholesterol and plasma lipoproteins. Hypercholesterolemia and hypertriglyceridemia are the main causes of

atherosclerosis and metabolic dysfunctions which are strongly related to ischemic heart disease and ischemic stroke leads to high mortality around the world. The prevalence of dyslipidemia is 79 % in Indian population [2].

In the 2012 ADA Standards of Care, the easing of the systolic blood pressure target to 140 mmHg for patients with diabetes caused controversy among experts. As noted by members of this year's PPC, the 2023 definition of hypertension in people with diabetes "is  $\geq 130$  mmHg systolic or  $\geq 80$  mmHg diastolic blood pressure, repeated on

two measurements at different times.” In individuals with established cardiovascular disease, hypertension can be diagnosed “with just one measurement of  $\geq 180/110$  mmHg.” The goal of treatment is now less than 130/80 mm Hg if it can be reached safely [3].

For low-density lipoprotein (LDL) cholesterol levels in patients with diabetes, the ADA recommends now a target of less than 70 mg/dL or no greater than 55 mg/dL, depending on the individual’s cardiovascular risk. The 2023 standards also have new therapeutic lipid targets. For people with diabetes aged 40-75 years at increased cardiovascular risk, including those with one or more atherosclerotic risk factors, high-intensity statin therapy is recommended to reduce LDL cholesterol by 50% or more from baseline and to a target of less than 70 mg/dL, in contrast to the previous target of 100 mg/dL. To achieve that goal, the document advises “adding ezetimibe or a PCSK9 inhibitor to maximally tolerated statin therapy” [4].

As it pertains to the management of type 2 diabetes, the ADA has emphasized an increased focus on cardiorenal risk reduction and weight management in the Standards of Care in Diabetes – 2023. Tools and therapies focus on weight loss and cardiorenal risk reduction in diabetes from a perspective other than simple glucose control [5].

For people with diabetes aged 40-75 who have established cardiovascular disease, treatment with high-intensity statins is recommended with the target of a 50% or greater reduction from baseline and an LDL cholesterol level of 55 mg/dL or lower, in contrast to the previous 70 mg/dL. As it has been for the past 6 years, the section on cardiovascular disease and risk management is also endorsed by the American College of Cardiology [6].

Another new recommendation from the ADA based on recent trial data is the use of sodium–glucose cotransporter 2 (SGLT2) inhibitors in people with diabetes and heart failure. Additional emphasis on supporting weight loss of up to 15% with the new Twincretin Tirzepatide (Mounjaro) - approved by the FDA in May 2022 for type 2 diabetes — has been added as a glucose-lowering drug with weight-loss potential [7].

Siddha medicine is an amazing natural therapy for the practitioner who can experience inner divinity while treating or preventing the disease of the patients [8]

In clinical practice, an effective antidyslipidemic and thrombolytic agent in Siddha classical formula is not available. This lacuna is completely fulfilled by the capsule Arjunforte. The ingredients and their pharmacological actions are noted in this research paper. Here I had treated with capsule Arjun forte which is an effective herbo-mineral compound drug as a preventive and curative medicine in dyslipidemia patients [9].

Several studies have indicated that foods play important role in dyslipidemia, in Siddha also food is medicine, medicine is food, food play important role incurring diseases, so I advised patient to reduce carbohydrate rich foods and avoid frequently cooked oils, spicy foods & non-vegetarian foods [10].

The recent treatment modalities available for them are very expensive and are not sufficient to provide the expected improvement. As a result of these difficulties, people have turned back to the traditional system of medicine for a better prognosis. The holistic approach of siddha system may be of very useful in improving the life span of dyslipidemic patients [8].

## AIM AND OBJECTIVES

To ensure the efficacy of Siddha medicine Arjun forte capsule with diet modifications and proper medical advice in dyslipidemia cases.

To observe the anti-dyslipidemic activity of arjun forte ingredients, a product of Santhigiri Health Care and Research Organization by treating the dyslipidemic patients attending Outpatient Department of Santhigiri Siddha Medical College and Hospital.

## MATERIAL AND METHODS

### Selection of the Patients

- Patients attending Outpatient Department of Santhigiri Siddha Medical College and Hospital with proper investigation reports of high level of Triglycerides, Very Low Density Lipoprotein, Low Density Lipoprotein and total serum cholesterol

than normal and reduced level of High-density Lipoprotein.

- Diagnosis has been made on the basis of the lipid profile parameters.

The following range of values have been taken for diagnosis of dyslipidemia.

Serum Total cholesterol >200 mg/dl  
 Serum Triglyceride >100 mg/dl  
 Serum Low Density Lipoprotein >150 mg/dl  
 Serum Very low-density lipoprotein >30 mg/dl  
 Serum High-density lipoprotein < 50 mg/dl

- For safety purposes, before and after treatment routine blood investigations, RFT and LFT have been done.

#### Treatment modality followed

- Drug name : Capsule-Arjun forte
- Dosage : 1 Capsule (Twice a day after food)

- Adjuvant : Luke warm water
- Duration : 60 days
- Authority of the drug : Santhigiri Health Care & Research Organization

#### General medical advice given to the patients

- Avoid spicy, salty & non-vegetarian food. (Diet regimen)
- Advised to do walking 2km per day and get sunlight and fresh air daily.
- Avoid refined sugars and carbohydrate rich food items.
- Avoid stress.
- Avoid using repeatedly deep cooked oils.

#### Assessment of Outcome

Assessment of relief by assessing reduction / relieving of symptoms

By comparing HDL, VLDL, LDL, TGL and TCL level before and after treatment

### Ingredients of the Capsule Arjunforte and its Pharmacological Actions

**Table 1: Ingredients of the capsule Arjunforte and its pharmacological actions**

S.No	Botanical /Chemical name	Tamil name	Quantity (mg)	Pharmacological Actions[11,12]
1	<i>Withania somnifera</i> (L.) Dunal	<i>Amukkara</i> [11]	50	Anti-dyslipidemic, Anti-diabetic Anti-oxidant, Antihypertensive
2	<i>Mesua ferrea</i> L.	<i>Sirunagapoo</i> [11]	50	Anti-inflammatory, Anti-oxidant, Anti-cancer, Stimulant, Carminative Hepatoprotective, Anti-diabetic
3	<i>Centella asiatica</i> (L.) Urban	<i>Vallarai</i> [11]	50	Antidyslipidemic Antihypertensive, Antioxidant
4	<i>Allium sativum</i> L.	<i>Poondu</i> [11]	50	Antidyslipidemic, Antihypertensive
5	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn.	<i>Marutham pattai</i> [11]	50	Antidyslipidemic, Antioxidant
6	<i>Myristica fragrans</i> Houtt.	<i>Jathikkai</i> [12]	50	Antidyslipidemic, Antidiabetic, Antioxidant
7	<i>Calx of pearl</i>	<i>Muthu parpam</i> [12]	40	Antioxidant, Antimicrobial, [ Reduce lipid peroxidation, prevents oxidative damage]
8	<i>Calx of Mica</i>	<i>Abhraga parpam</i> [12]	40	Anti-diabetic, Anti- dyslipidemic, Diuretic
9	<i>Calx of Copper</i>	<i>Thamira parpam</i> [12]	20	Anti-dyslipidemic, Hepatoprotective

## Management of the Patients

Totally 4 dyslipidemic cases, diagnosed through the proper lipid profile investigations were selected with average age group in between 50 -60, with the common complaints of difficulty in breathing, sleeplessness, mild occasional chest pain and increased body weight since last 4 months. The patients were having the personal history of taking non- vegetarian diet, non - alcoholic, lack of physical activities and the positive familial history of dyslipidemia, these factors were noted among the 4 cases.

In Vital signs, mild elevation in blood pressure and respiratory rate were noted and the systemic clinical examination had shown no abnormalities.

The investigations of the cases had revealed that increased levels of VLDL, LDL, TGL and Total Cholesterol and reduction in HDL level. After the diagnosis, the above cases were treated with the Capsule Arjun forte (1 capsule / twice a day / after food with Luke warm water for 60 days) and diet and lifestyle modifications. Before and after treatment, routine blood investigations, RFT and LFT analysis of the patients were noted as normal.

## OBSERVATIONS

Within a week, the patients got relieved from the symptoms of difficulty in breathing, sleeplessness and mild occasional chest pain. During the treatment, an average reduction of 1 to 2 kg body weight in all 4 cases was noted.

**Table 2: Analysis of Lipid Profile – Before and After Treatment**

Case No.	HDL (mgs %)		VLDL (mgs %)		LDL (mgs %)		TGL (mgs %)		TCL (mgs %)	
	BT	AT	BT	AT	BT	AT	BT	AT	BT	AT
1	49	68	41	28	210	174	106	81	280	258
2	46	58	40	26	220	180	108	84	250	228
3	48	68	42	25	230	176	110	80	240	210
4	42	66	44	20	210	174	102	84	280	252

BT: Before treatment

AT: After Treatment

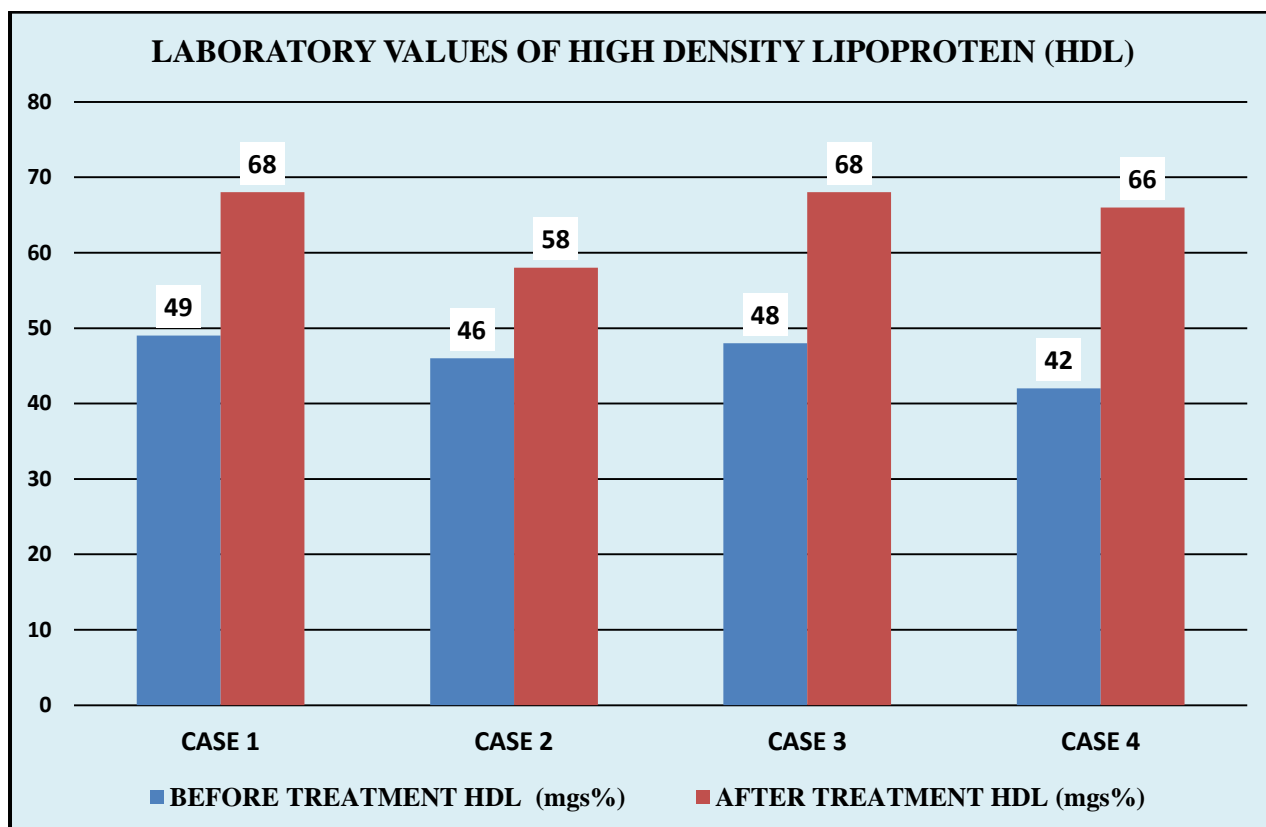
HDL- High Density Lipoprotein

VLDL - Very Low Density Lipoprotein

LDL- Low Density Lipoprotein

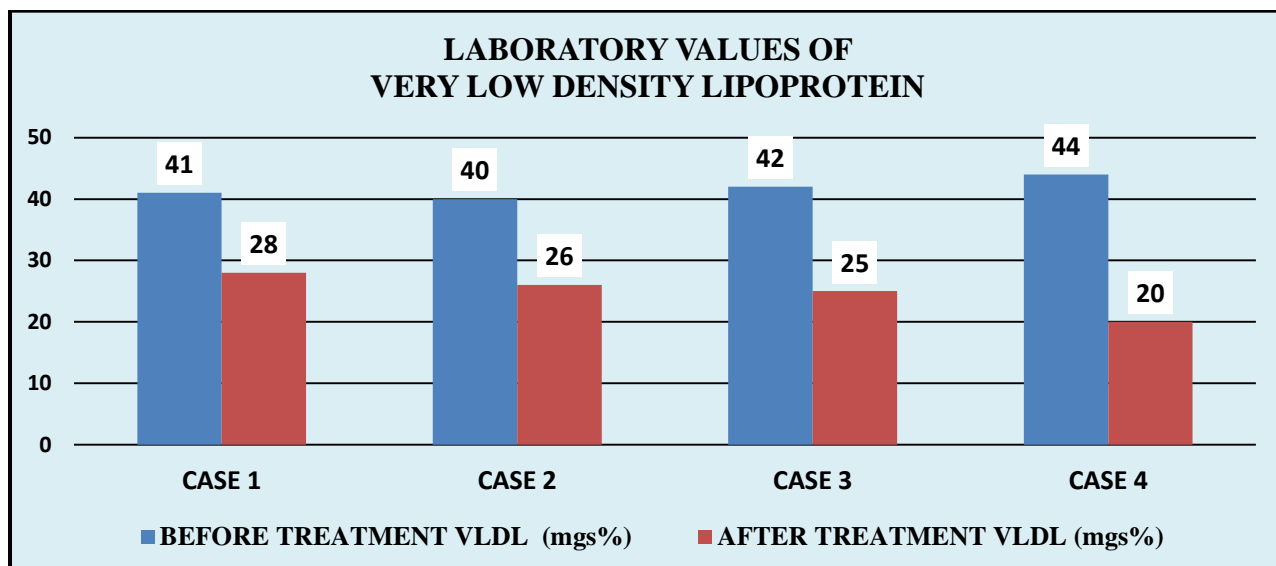
TGL- Triglycerides

TCL- Total Cholesterol



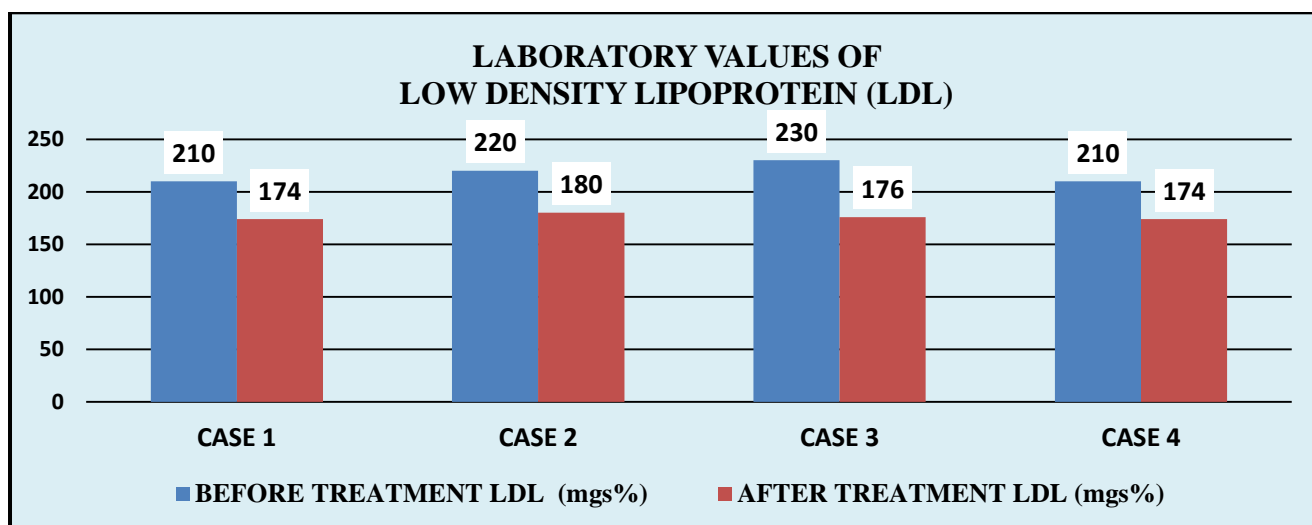
**Fig.1: Before and after treatment - serum High Density Lipoprotein (HDL) values**

**Inference:** After treatment serum HDL level showed an increase in average of 19 mgs %.



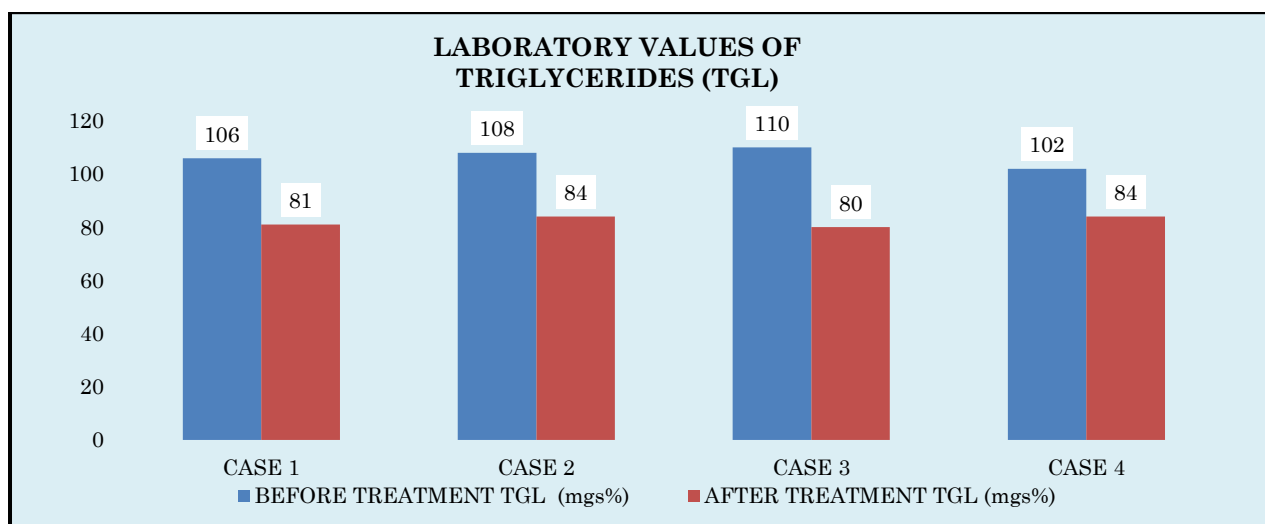
**Fig. 2:** Before and after treatment - serum VeryLow Density Lipoprotein (VLDL) values

**Inference:**After treatment serum VLDL level showed a decrease in average of 17 mgs %.



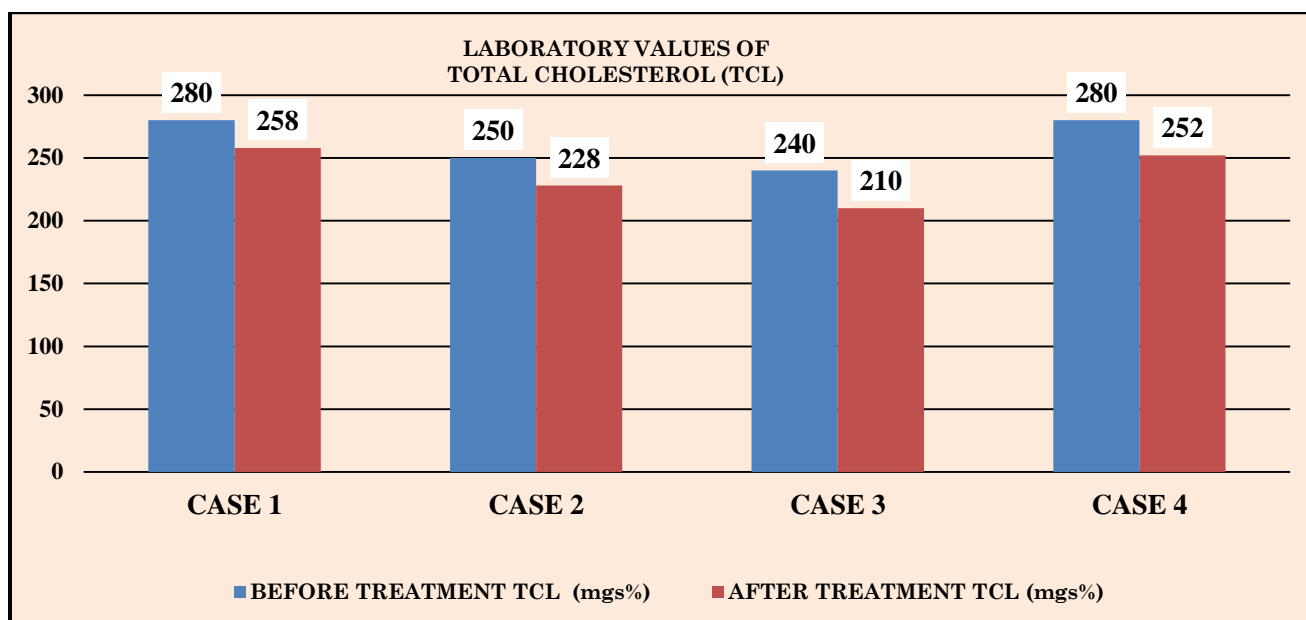
**Fig.3:** Before and after treatment - serum Low Density Lipoprotein (LDL) values

**Inference:** After treatment serum LDL level showed significant decrease in average of 42 mgs %.



**Fig.4:**Before and after treatment - serum Triglycerides (TGL) values

**Inference:** After treatment serum VLDL level showed a decrease in average of 24 mgs %.



**Fig. 5: Before and after treatment - serum Total Cholesterol (HDL) values**

## Inference

After treatment serum total Cholesterol level showed a decrease in average of 26 mgs %.

## RESULTS AND DISCUSSION

After the treatment period of 60 days, the patients experienced normal breathing and sleep pattern. All the 4 patients were relieved from the occasional chest pain and additionally an average reduction of 3 to 4 kg body weight was noted. Laboratory analysis revealed that significant quantitative reduction in levels of VLDL(17 mgs %), LDL (42 mgs%), TGL(24 mgs%) and Total serum Cholesterol (26 mgs %), along with the elevation of HDL level ( 19 mgs%).

Routine blood investigations, RFT and LFT analysis of the patients had found to be normal, which revealed the significant safety profile of the drug in usage.

Among the cases attending the OPD of Santhigiri Siddha Medical College and Hospital, 4 female cases (50 -60 aged) were selected by following the diagnosing criteria with proper investigation report, on the basis lipid profile test they were diagnosed as dyslipidemic cases. All of the four had common complaints of difficulty in breathing, sleeplessness, mild occasional chest pain and increased body weight since last 4 months.

Positive personal history of taking non-vegetarian diet especially red meat in rich amount for longer duration, lack of

physical activities like walking, exercises and household works might be cause of dyslipidemia in these cases and the additional positive familial history of dyslipidemia was the predominant prevalence factor.

On examination of the patients, found that mild elevation in blood pressure (> 130/80 mm Hg) and respiratory rate (more than 20 beats/min) and the systemic clinical examination found normal. The investigations had revealed that increased level of VLDL, LDL, TGL and Total Cholesterol and a reduction in HDL level. After the diagnosis, the above cases were treated with one capsule of Arjun forte twice a day taking after food with Luke warm water and proper diet and lifestyle modifications.

Within a week, the patients got mild relief from the symptoms of difficulty in breathing, sleeplessness and mild occasional chest pain. During the treatment, an average reduction of 1 to 2 kg body weight in all 4 cases was noted in the first 30 days.

After the entire treatment period of 60 days, the patients experienced normal breathing and good sleep. All the 4 patients were relieved from the occasional chest pain and additionally an average reduction of 3 to 4 kg body weight was noted.

Laboratory analysis revealed that significant quantitative reduction in levels of VLDL (17 mgs %), LDL (42 mgs %), TGL (24 mgs%) and Total serum Cholesterol (26 mgs %), along with the elevation of HDL level ( 19 mgs%). By increasing the desirable good cholesterol (HDL) level, reducing the bad cholesterol (LDL) and other lipids like VLDL, TGL, Total cholesterol, after treatment, lipid profile test of the patients had a good prognosis.

While discussing about each ingredient of the Arjunforte and as well as the whole drug has bioactive chemical components which can be treating in the above said ailments with the beneficial effect of reducing the following symptoms such as chest pain, difficulty in breathing, sleeplessness. Recent researches show that phytochemicals, flavonoids, phenolic and organo sulphur compounds etc., are present in the ingredients of Capsule Arjunforte, which is also rich in antioxidants, to treat the root cause of dyslipidemia.

## CONCLUSION

This study reveals that this drug Arjunforte could be used as a curative and preventive medicine in dyslipidemia, cardiac ailments and ischemic stroke since the ingredients of the drug itself has excellent antidyslipidemic activity against metabolic inconvenience which is the predominant cause of dyslipidemia. It is recommended that the administration of the Capsule Arjunforte along with some life style modifications and dietary advices will induce an effective result in reducing the life-threatening complications observed in the cases of dyslipidemia. Therefore, it could be considered as an excellent choice of drug for the normalizing the deranged serum lipid levels.

## FUTURE SCOPE

This drug can be studied to assess the efficacy of thrombolytic and hepatoprotective effect. The safety profile of the drug can be assessed in details. Anti-hypertensive effects can also be studied.

## NOTES ON THE CLIENT'S INFORMED CONSENT

For this study to be published, the client provided written consent. They agreed to the format in which clinical data, may be published. Their names and initials would not be revealed, and they knew that every

effort would be made to keep her identity disguised, but anonymity could not be guaranteed.

## STATEMENT OF ETHICS

This was carried out ethically in accordance with the World Medical Association Declaration of Helisinki and conforms to the regulations for research involving humans.

## ACKNOWLEDGMENTS

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