A CLINICAL STUDY TO EVALUATE THE EFFICACY OF VAMANA KARMA IN THE MANAGEMENT OF DYSLIPIDEMIA

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ABSTRACT

Objective: The aim of the present study is to evaluate the efficacy of Vamana karma in the management of dyslipidemia.

Methods: Patients were selected from the OPD and IP at the Department of Panchakarma, Hospital of Rishikul Campus, Uttarakhand Ayurved University, Haridwar. Patients in Group A will be administered with two sittings of Vamana procedure. In Group B, 20 patients will be treated with atorvastatin for 60 days in dose of 10 mg once daily after meals with water.

Results: The overall assessment of the therapy was decided on the basis of improvement in biochemical parameter (serum lipid profile) by applying statistics. Vamana karma had statistically highly significant result in all the objective parameters except high-density lipoprotein [HDL].

Conclusion: Thus, it can be concluded that dyslipidemia is a form of Kaphavikara specifically may be Medodushti in the form of Abaddha meda. Vamana karma is highly effective in correcting serum lipid profile except HDL and very low-density lipoprotein but have better effect than the standard drug in both of them. Vamana karma can be used for the effective and safe management of dyslipidemia.

Keywords: Dyslipidemia, Medodushti, Abaddha meda, Kaphavikara, Vamana.

INTRODUCTION

Disorders of lipoprotein metabolism are collectively referred to as dyslipidemias [1]. It is an important risk factor in the initiation and progression of atherosclerosis and coronary heart disease [2]. The association of dyslipidemia with Type 2 diabetes mellitus (DM) as comorbidity for cardiovascular events, leading eventually to a high rate of mortality, has been a growing concern for the medical fraternity [3]. Dyslipidemia is now becoming the cause of most complicated and life-threatening disorders such as coronary artery disease, ischemic heart disease (IHD) (responsible for 56% global IHD) [4], cerebrovascular accidents, myocardial infarction (responsible for 18% global cardiovascular disease’s) [4], arthritis, and various other disorders like hypertension, leading to multiorgan damage [5].

Dyslipidemias are generally characterized clinically by increased plasma levels of cholesterol and triglycerides or both, variably accompanied by reduced levels of high-density lipoprotein (HDL) cholesterol [1]. It has been proved that elevated plasma levels of cholesterol are responsible for atherosclerosis in man, and epidemiological data suggest that elevated plasma levels of HDL have a protective effect [5]. The majority of patients with dyslipidemia have some combination of genetic predisposition and environmental contribution [1]. Various allopatic drugs are being used for the management of hyperlipidemia. Statins are the most effective drugs, possess a very good lipid-lowering action, but few of them, such as Atorvastatin, have clearly shown that they also have a potential role in the secondary prevention of atherosclerosis and coronary heart disease [2]. The dyslipidemias [1]. It is an important risk factor in the initiation and progression of atherosclerosis and coronary heart disease [2]. The association of dyslipidemia with Type 2 diabetes mellitus (DM) as comorbidity for cardiovascular events, leading eventually to a high rate of mortality, has been a growing concern for the medical fraternity [3]. Dyslipidemia is now becoming the cause of most complicated and life-threatening disorders such as coronary artery disease, ischemic heart disease (IHD) (responsible for 56% global IHD) [4], cerebrovascular accidents, myocardial infarction (responsible for 18% global cardiovascular disease’s) [4], arthritis, and various other disorders like hypertension, leading to multiorgan damage [5].

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The treatment of dyslipidemia is essential. Various allopathic drugs are being used for the management of hyperlipidemia. Statins are the most effective drugs, possess a very good lipid-lowering action, but few of them, such as Atorvastatin, have clearly shown that they also have a potential role in the secondary prevention of atherosclerosis and coronary heart disease [2].

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**Laboratory investigations**
- Routine hematological parameters
- Complete lipid profile
- B. sugar-fasting and post-prandial (if required)
- Thyroid function test (if required)
- KFT (if required)
- Electrocardiogram (if required).

These investigations were carried out before, in between, and after completion of therapy.

**METHODOLOGY FOR GROUP A (VAMANA KARMA)**

**Procedure of Vamana**
All the 20 patients were treated with Vamana karma in two consecutive sitting with a gap of 15 days.

**Purva Karma**
Deepana-pachana
It is carried out with Dravyas having Vayu and Agni predominant properties such as Trikatu churna and Panchakola phanta twice in a day with lukewarm water.

**Snehapana**
Achha sneha (Go-Ghrita) according to Kashtha of patient till appearance of Samyaka snidha Lakshana was given for Abhyantara snehapana in increasing dose.

**Bahya snehana**
Bahya Snehana was done with Murchhita Til Taila for 1 day.

**Bahya Swedana**
Bahya Swedana was carried out with Nadi Swedana.

**Pradhana karma**
It can be divided into the following steps:
- **Aaskartha-pana:** Performed by milk.
- **Vamana yoga:**
  - Madanaphala churna, Vacha churna, and Saindhava in a ratio of 4:2:1 have been taken.
  - Madanaphala is the best among all Vamaka dravyas because of its Anapayitva property (devoid of complications).
  - 6–8 g dose of Madanaphala pippali churna is given in the present clinical study.
  - Vamanopaga dravyas: Yashtimadhu phanta, Madhu, and Saindhava.

Vamana yoga was given at 5 am–7 am. Process was continued till Samyaka shuddhi lakshana was obtained.

**Paschata karma**
Samsarjana karma was followed as per type of Shuddhi.

**METHODOLOGY FOR GROUP B (ATORVASTATIN)**

Tablet atorvastatin was given at the dose of 10 mg once a day after meals with water for 60 days.

**Follow-up**
After the completion of the treatment in both the groups, patient was advised to visit O.P.D. at interval of 30 days.

**Assessment criteria**
Objective criteria were mainly assessed on the basis of biochemical investigations of lipid profile, body weight, and body mass index (BMI), before Vamana Karma and after complete treatment were assessed in terms of percentage relief and statistical evaluations (Table 1).

**Statistical analysis**
The information collected on the basis of above observations was subjected to statistical analysis using GraphPad Instat, Software version 3.10 and SPSS software. The criteria selected for analysis were non-parametric, i.e., grading for objective parameters was taken except the ratios which were taken as parametric entities. Hence, “Wilcoxon signed-rank test” within the group and “Mann–Whitney test” for intergroup comparison were applied for non-parametric statistical improvement analysis, but for the ratios, parametric test applied, i.e., paired t-test within the group and unpaired t-test for intergroup comparison. In the above statistical tools, the probability value 0.05 is considered as statistically significant level.

**RESULTS**
The study sample consisted of 40 patients, 20 patients in each Group A and B, respectively.

**Intragroup comparison - Group A**
As shown in Tables 2 and 3, the mean value of S. cholesterol reduced by 1.80 (76.6%), S. triglyceride reduced by 1.15 (79.3%), S. VLDL reduced from 0.70 to 0.10 (85.71%), S. LDL reduced by 0.95 (67.85%), LDL: HDL reduced by 0.99 (26.80%), total cholesterol: HDL reduced by 1.59 (25.44%), increase of 0.10 (6.9%) was observed in S. HDL level, and BMI reduced from 0.90 to 0.45.

**Intragroup comparison - Group B**
As shown in Tables 4 and 5, the mean value of S. cholesterol reduced by 1.85 (78.72%), S. triglyceride reduced by 1.25 (83.3%), S. LDL reduced from 1.05 (72.41%), S. VLDL reduced by 0.75 (75%), LDL: HDL reduced by 0.89 (26.33%), total cholesterol: HDL reduced by 2.09 (31.79%), fall of 0.05 (3.22%) was observed in S. LDL, and BMI reduced from 1.20 to 1.05.

**Intergroup comparison (A and B)**
As shown in Tables 6 and 7, intergroup comparison was performed between Group A and Group B to compare the efficacy of Vamana Karma in comparison to the control drug, i.e., atorvastatin which showed that there was no significant difference in all the parameters taken.

S. Cholesterol
Tablet atorvastatin was found more effective in lowering S. cholesterol values by 0.05 as compared to results in Group A which was found statistically non-significant.

S. Triglyceride
Results obtained in Group B were better as compared to Group A by 0.10 with statistical non-significance.

S. LDL
Group B showed more effective results by 0.10 with non-significant p value.

S. VLDL
Group B showed mild improved result by 0.15 as compared to Group A with non-significant p value.

S. HDL
Group A showed much better results in improving S. HDL in comparison to negative results obtained in Group B with statistical non-significance.
Follow-up study
Follow-up was done after 1 month of completion of treatment. After 1 month, all the objective parameters shown slight increment in both the groups, but Group A is found to have better follow-up in S. HDL and BMI.

Table 1: Criteria for examination and assessment

| Variables         | Grade    | Points |
|-------------------|----------|--------|
| Cholesterol       | Desirable| 0      |
| <180 mg/dl        | Near optimal | 1      |
| 200–239 mg/dl     | Borderline high | 2      |
| >240 mg/dl        | High     | 3      |
| Triglycerides     | Desirable| 0      |
| <150 mg/dl        | Near optimal | 1      |
| 200–499 mg/dl     | Borderline high | 2      |
| >500 mg/dl        | Very high| 3      |
| LDL               | Desirable| 0      |
| <100 mg/dl        | Near optimal | 1      |
| 100–159 mg/dl     | Borderline High | 2      |
| >160–189 mg/dl    | High     | 3      |
| ≥190 mg/dl        | Very high| 4      |
| VLDL              | Desirable| 0      |
| <40–60 mg/dl      | High     | 1      |
| ≥60 mg/dl         | Very high| 2      |
| HDL               | Desirable| 0      |
| >60 mg/dl         | Low      | 1      |
| ≥40–60 mg/dl      | Very low | 2      |
| BMI               | Normal weight | 0      |
| 18.5–25           |          |        |
| 25–30             | Overweight | 1      |
| 30–35             | Obese Class I (moderately obese) | 2      |
| 35–40             | Obese Class II (severely obese) | 3      |
| ≥40               | Obese Class III (very severely obese) | 4      |

Table 2: Effect of Vamana karma (Group A) on objective parameters of dyslipidemia (Wilcoxon signed-rank test)

| Variables         | Sample size | Mean BT | Mean AT | % change |
|-------------------|-------------|---------|---------|----------|
| Cholesterol       | 20          | 2.35    | 0.55    | -1.80    |
| LDL               | 20          | 1.45    | 0.30    | -1.15    |
| VLDL              | 20          | 0.70    | 0.10    | -0.60    |
| HDL               | 20          | 1.45    | 1.55    | -0.10    |
| BMI               | 20          | 0.90    | 0.45    | -0.45    |

LDL: Low-density lipoprotein, VLDL: Very low-density lipoprotein, HDL: High-density lipoprotein, BMI: Body mass index

Table 3: Effect of Vamana karma (Group A) on objective parameters of dyslipidemia (paired t-test)

| Variables | Mean | SD | SE |
|-----------|------|----|----|
| LDL: HDL  |      |    |    |
| AT        | 3.71 | 0.733 | 0.164 |
| CHO: HDL  | 6.25 | 1.382 | 0.309 |

LDL: Low-density lipoprotein, HDL: High-density lipoprotein, CHO: Cholesterol, AT: After treatment, CHO: Before treatment

Table 4: Effect of tablet atorvastatin (Group B) on objective parameters of dyslipidemia (Wilcoxon signed-rank test)

| Variables | Sample size | Mean BT | Mean AT | % change |
|-----------|-------------|---------|---------|----------|
| Cholesterol | 20 | 2.35 | 0.50 | 1.85 |
| Triglycerides | 20 | 1.50 | 0.25 | 1.25 |
| LDL         | 20 | 1.45 | 0.40 | 1.05 |
| VLDL        | 20 | 1.00 | 0.25 | 0.75 |
| HDL         | 20 | 1.55 | 1.50 | -0.05 |
| BMI         | 20 | 1.20 | 1.05 | 0.15 |

LDL: Low-density lipoprotein, VLDL: Very low-density lipoprotein, HDL: High-density lipoprotein, BMI: Body mass index, AT: After treatment

Table 5: Effect of tablet atorvastatin (Group B) on objective parameters of dyslipidemia (paired t-test)

| Variables | Sample size | Mean BT | Mean AT | % change |
|-----------|-------------|---------|---------|----------|
| LDL: HDL  | 20          | 3.40    | 0.841   | 0.188   |
| CHO: HDL  | 6.58        | 1.325   | 0.296   |
| AT        | 4.49        | 1.000   | 0.224   |

LDL: Low-density lipoprotein, HDL: High-density lipoprotein, CHO: Cholesterol, AT: After treatment, CHO: Before treatment

Table 6: Intergroup comparison (unpaired t-test)

| Variables | Sample size | Mean | SD | SE |
|-----------|-------------|------|----|----|
| LDL: HDL  | 20          | 0.955 | 0.558 | 0.125 |
| Group B   | 0.896       | 0.946 | 0.212 |
| CHO: HDL  | 1.590       | 1.057 | 0.236 |
| Group B   | 2.092       | 0.987 | 0.221 |

LDL: Low-density lipoprotein, HDL: High-density lipoprotein, CHO: Cholesterol, NS: Non-significant, AT: After treatment, CHO: Before treatment

DISCUSSION
Vamana is a safe Panchakarma procedure if undertaken methodically. It is a cleansing process that improves appetite, regulates bowel habits, and improves sleep pattern. It decreases LDL and serum cholesterol level as a part of its Kapha hara action [10]. Few researches have shown the multisystem effects of Vamana karma without any side effects.

Sanjita et al. found in a single case study of a 26-year-old male patient presented with increased lipid profile in which classical Vamana karma was done as the line of management that cholesterol and triglycerides had come down after the Vamana procedure [11]. According to another study carried out by Gupta et al. on 15 healthy

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CONCLUSION

_Vamana karma_ is highly effective in correcting serum lipid profile except HDL and VLDL but have better effect than the standard drug in both of them. _Vamana karma_ can be used for the effective and safe management of dyslipidemia.

**AUTHORS’ CONTRIBUTIONS**

SHIPRA Singh - has conducted the study clinically. Dr. Alok Kumar Srivastava - has provided the design and protocol for conducting the study along with mentorship.

**CONFLICTS OF INTEREST**

The author declares that there are no conflicts of interest regarding the publication of the article.

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