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CLINICAL STUDY OF HYPERLIPIDEMIA (FART-E-TADASSUM FID-DAM) AND THERAPEUTIC EVALUATION OF SAFOOF-E-MUHAZZIL IN ITS MANAGEMENT

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ABSTRACT

Hyperlipidemia is becoming a major public health problem now adays in industrialized world. Hyperlipidemia is usually associated with obesity, type 2 diabetes mellitus and metabolic syndrome that leads to Atherosclerosis that results in sudden death. There are manydrugs in modern system of medicine to cure hyperlipidemia but having very adverse effect so it is need of time to cure the hyperlipidemia with a drug from alternative system of medicine having no side effect. According to classical text book of Unani medicine there are various single and compound drug that are to be very effective in management of hyperlipidemia Such as *Muqul, Qurse Pudina* and *Saffof-e-Muhazzil* etc. A Randomized single blind study was designed to clinical trial of *Safoof-e-Muhazzil* for evaluation of efficacy of *Safoof-e-Muhazzil* on Hyperlipidemia. Study was conducted in the Department of Moalejat, A.K.T.C Hospital. The protocol therapy duration was 90 days and follow up fortnightly.30 Patients were selectedfor clinical trial. Assessment of efficacy was done on the basis of objective and subjective parameters. The result of present clinical trial demonstrates that *Safoof-e-Muhazzil* is highly effective in management of hyperlipidemia due to its lipid lowering ingredients.

KEYWORDS: Randomized single blind, *Safoof-e-Muhazzil*, Hyperlipidemia, objective parameters, Unani medicine.

INTRODUCTION

Fart-e-tadssum-fid-dam (Hyperlipidemia) is a preventable disease and have reached epidemic proportion globally along with an adoption of westernized lifestyle characterized by increased blood level of Cholesterol, Triglycerides, low density lipoprotein and very low density lipoprotein including reduced level of high density lipoprotein.[1] American Heart Society quoted, "Hyperlipidemia is a mouthful, but it's really just a fancy word for too many lipids or fats in the blood". The term hyperlipidemia is broad that can cover a number of conditions related to many types of lipids but most commonly used for high cholesterol and high triglycerides.[2] Hyperlipidemia and Hypercholesteremia is strongly associated with development of atherosclerosis that is hardening and scarring of medium sized artery that leads to Ischemic heart disease and sudden death.[3] Increased oxidative stress due to hyperlipidemia causes the initiation of atherosclerosis that is associated with cardiovascular and cerebrovascular disorder.[4] Hyperlipidemia mostly associated with obesity that is a complex trait with multifactorial aetiologia, including behavioral, environmental and genetic factor. It is a growing epidemic with a current prevalence is directly responsible for the rapidly increasing morbidity and mortality from cardiovascular disease, cerebrovascular diseases, reproductive challenges, and psychosocial problems.[5] Familial hyperlipidemia is found in 2% of general Population and Cases of Coronary artery disease accounts up to 20%. Homozygous familial hypercholesterolemia occurs at the rate of 1 in 1 million and heterozygous FH occurs in1 in 500 peoples but account for only 5% premature MI (males >55 and females >65).[6] According to epidemiological studies worldwide it has been proved that there is strong correlation between increased serum level of cholesterol and coronary artery disease.[7] A surveillance has been done by ICMR in which it has been observed that the prevalence of dyslipidemia is 37.5% in the age group of 15-64 years and it becomes higher up to 62% in young industrial workers.[8] Although the drugs currently available for the treatment of hyperlipidemia are few in numbers and limited in efficacy such as Ecospirin, Fibrates, Nicotinic acid and Statin that have adverse effect on multisystem of body.[8]

Apart from modern medicine in Unani system of

medicine *Fart-e-tadssum-fid-dam* (Hyperlipidemia) is a phlegmatic disease in which temperament of body becomes abnormally *Barid and Ratab* that results in excessive accumulation of fats (*Sheham wa Sameen*) leading to hyperlipidemia. Unani physician like *Ibn-e-Sina*, *Daud Antaki*, *Zakaria Razi*, *Ismail Jurjani* and *Rabban Tabri* described Historical background, etiology, types, sign and symptoms, clinical diagnosis and management in detailed way.[9-13]

In view of the above facts, it was envisaged to investigate the effect of *Saffof-e-Muhazzil* for its anti-lipidemic effect. This compound drug *Safoof-e-Muhazzil* has been proved as anti- obesity effect in consequences anti lipidemic effect in Unani pharmacopeia (Qarabadeen) because this Unani formulation possess action like *Muhazzil*, *Musakhkhin* (Calorific), *Mudir* (Diuretic) and *Mulattif* (Demulcent) property due to its ingredients such as Zeera siyah *(Carum carvi)*, Ajwain *(Trachyspermum ammi)*, Marzanjosh *(Origanum majorana)*, Badiyan *(Foeniculum vulgare)*, Luk Maghsool *(Cocoslacca)* Bura Armini*(Sodium borate)* and Suddab *(Ruta graveolens)*is beneficial in order to improvement in hyperlipidemia.[14-18]

MATERIALS AND METHODS

This Randomized single blind comparative clinical trial of *Safoof-e-Muhazzil* on hyperlipidemia was conducted in Department of Moalejat, A.K.T.C Hospital, Aligarh from July 2017 to May 2019. The protocol therapy duration was 90 days and follow up fortnightly. For clinical trial 30 patients were selected. The selection of patients and efficacy of *Safoof-e- Muhazzil* were assessed upon the basis of subjective parameters, objective parameters and laboratory investigations. The patients were kept under observation and advised dietary control and exercise (Brisk walking). Findings of drug was recorded on designed CRF and inference was made by appropriate statistical analysis.

1. Criteria for selection of subjects

a) Inclusion Criteria

- Patient diagnosed with hyperlipidemia from either sex
- BMI >25
- Xanthelasma
- Xanthoma
- Corneal Arcus
- Waist circumference

>102 cm in men
>88 cm in women

- Patients who are able to participate in study, agree to follow instruction and sign theconsent form.
- Patients in age group of 20 to 60 years.
- Patients with complex symptoms that consist of dyspnea, lethargy, weakness,palpitation.

b) Exclusion Criteria

- Patients below 20 years of age and above 60 years
- Patient who fail to give written consent
- Pregnant and lactating mother
- Patient who fail to follow up
- Patient using estrogen containing contraceptive pills
- Patients of portal hypertension
- Patients suffering from Hypothyroidism, Diabetes Mellitus, chronic Renal Failure, Nephrotic Syndrome, HIV+ve, Cirrhosis of Liver, Chronic Alcoholism, Primary gout and Bleeding disorder.

2. Investigations

Certain investigations carried out aiming

- As objective parameters
- To establish the safety of drug
- To diagnose the patient of obesity due to any metabolic disorder for excluding fromstudy.

Following investigations were done in each and every patient.

TLC, DLC, RBC, ESR, Hb%, RFT, LFT, Lipid Profile (Total cholesterol, Triglycerides and HDL), Blood Sugar (Random & Post Prandial) and Urine (Routine and Microscopic)

Above all investigations were done before starting the trial and also after completing thetrial.
Thyroid profile, RBS, and ECG were done before starting the study trial for exclusion of other disease.

3. Selection of subjects

The patients were selected on the basis of symptoms like increased body weight, palpitation, xanthelasma, xanthoma and corneal arcus. After provisional diagnosis patients were subjected to laboratory investigations for confirmation of diagnosis. For selection complete history such as interrogation, history of present illness, past history, family history, general examination, physical examination and socioeconomic history. Kuppuswami socioeconomic status (2007) was used for detection of socioeconomic strata.

4. Informed consent

Patients who are fulfilling the inclusion criteria were given consent form sheet consisting detailed information about the nature of study, duration of study, drug to be used, side effects of drugs, methods of treatment. Patients were given every kind of freedom to ask any type of questions and enough times to take decision for participation in the study. If they were agreed then they asked to sign on the consent form.

5. Study Design

Randomized Single blind clinical Trial.

6. Sample Size

Total number of patients : 30

7. Assessment of *Mizaj* (Temperament)

Assessment of *mizaj* for the participant was done on the basis of *Ajnas-e-Ashra* that were given in classical Unani literature. The parameters have been attached with case

report form.

8. Method of Study

Diagnosed patient of Hyperlipidemia qualifying the inclusion criteria was subjected for clinical trial. Trial drug ***Safoof-e-Muhazzil* 5 gm** orally was given in patients twice a day. Patients were advised for **dietary regulation** in consequences to avoid fatty and deep fried foods to consume less than 1300 calories per day with moderate exercise as 20-30 minutes morning or evening brisk walk.

No concomitant treatment was prescribed during trial period.

10. Drug Used

Trial Drug: *Safoof-e-Muhazzil*

Route of Administration: Oral, in Safoof form

Table 1: Ingredients of *Safoof-e-Muhazzil.*

S. No.	Unani Nmae	Botanical Name	Quantity
1.	Ajwain Desi	*Trachyspermum ammi*	14 gm
2.	Zeera Siyah	*Carum carvi*	14 gm
3.	Tukhm-e-Badiyan	*Foeniculum vulgare*	14 gm
4.	Suddab	*Ruta graveolence*	14 gm
5.	Lukmaghsool	*Coccus lacca*	7 gm
6.	Marzanjosh	*Origanum majorana*	3 gm
7.	Bora Armani	*Sodium borate*	3 gm

The whole treatment plan for is based on drug regimen, exercise (Brisk walk for 20-30 minutes according to the condition of patient) and the diet containing 1200-1300 kcal/day is advised. General total energy is calculated by basal energy need 1 kcal/kg/hour.

11. Duration of protocol therapy: 3 months

12. Follow up: 90 days study was divided into 7 visits of follow up which were Fortnightly. At every visit patients were asked about improvement in their symptoms and carried out examinations to assess clinical findings.

13. Assessment of Safety: All adverse events experienced by a patient or observed bythe investigator were recorded at each visit. Adverse drugs reactions were assessed onNaranjo ADR probability scale and also on onset and severity classification.

A Physical examination including vitals were performed at the commencement of the trial and at each visit. Additional laboratory safety parameters like Haemogram (TLC, DLC, RBC, Hb%, ESR), LFT, RFT were also be carried out before and after completionof trial.

14. Assessment of Efficacy

The efficacy assessment in the trial groups was done upon the basis of subjective and objective parameters. Symptoms like palpitation, breathlessness, xanthelasma, lethargy and corneal arcus were included in subjective parameters. Objective parameters include weight, waist circumference and BMI. The subjective and objective parameters were assessed at every visit while Haemogram, Urine (routine and microscopic), Blood Sugar (Fasting and Post prandial), RFT, LFT and Lipid Profile were carried out before and after completion of trial.

The subjective symptoms vary from patient to patient and also in severity so an arbitrary grading scale were designed. Total Sign and Symptoms Score were adopted for proper assessment and statistical evaluation of the efficacy of trial drug. The severity of 4 different sign and symptoms (Lethargy, weakness, Breathlessness, Palpitation) were rated on a 4 point scale (0, absent;1, mild; 2, moderate; 3, severe) While the Values ofWeight, Waist circumference and BMI were noted. After the completion of trial, the pre and post treatment values and scores were recorded and assessed. These are also subjected to comparison and statistical analysis was done to evaluate the efficacy of trial drug.

Objective Parameters

- Weight gain
- Waist Circumference
- BMI
- Lipid Profile

14. Withdrawal criteria

- If the subject is not willing to continue.
- The cases in which adverse reactions are noticed.
- Any acute systemic illness during the therapy.
- During intolerance protocol.
- Noncompliant with the study.

15. Outcome Measures

1. Reduction in weight up to normal.
2. Reduction in BMI to normal range.
3. Reduction of waist circumference to normal range.
4. Improvement in Lipid Profile.
5. Improvement in clinical symptoms of Hyperlipidemia.

Statistical analysis: Paired students t-test was applied on subjective value parameters or Other statistical test was applied as per requirement of data was expressed as mean ± SD&was considered significant at $p<0.05$(significance level of 5%).

OBSERVATION AND RESULTS

In this study out of 30 patients of *Fart Tadassum Fid-Dam* (Hyperlipidemia), 20 patients were 51-60 years of age, 4 patients were 41-50 years of age 2 patients were 31-40 years of age, 4 patients were 20-30 years of age. The highest prevalence was found in the age group of 51-60. The percentage of Male patient is 60% which was slightly higher than female patients e.g. 40%. All the demographic data of patients are shown in (Table 2).

Table 2: Demographic Data of Patients n= 30.

Age of Group	n	Percentage	Mizaj	n	Percentage
20-30	4	13.4	Balghami	23	76.6
31-40	2	6.6	Damvi	7	23.4
41-50	4	13.4	Safrawi	0	0
	20	66.6		0	0
51-60			Saudavi		
Gender			**Religion**		
Male	18	60		Muslim	26
Female	12	40		Non-Muslim	4
S.E.S			**Marital Status**		
Upper (I)	14	46.6	Married	27	90
Upper Middle (II)	8	26.7	Unmarried	3	10
Lower Middle (III)	6	20	**Dietary Habits**		
Upper Lower (IV)	2	6.7	Vegetarian	2	6.7
Lower (V)	0		Mixed	28	93.3

The effect of Unani Compound on objective parameters i.e., Lipid profile (Serum Cholesterol, Serum Triglyceride, HDL), Body Weight and BMI are as follows:

Effect on Serum Cholesterol

In trial group mean serum cholesterol level was 204.03 ± 39.44 mg/dl before treatment and at the end of study it was 190.06 ± 37.24 mg/dl, showing mean reduction was 13.97 ±2.2 mg/dl and which was found to be significant (P<0.0035) (Table 3).

Effect on Weight of the Body

In trial group mean body weight was 72.26 ± 6.39 mg/dl before treatment and at the end of study it was 68.77 ± 7.2 mg/dl, showing mean reduction was 3.49 ± 0.81 mg/dl and which was found to be significant (P<0.001) (Table 3).

Effect on Waist Circumference

In trial group mean waist circumference was 95.4 ± 5.53 mg/dl before treatment and at the end of study it was 93.68 ± 5.5 mg/dl, showing mean reduction was 1.72 ± 0.03 mg/dl and which was found to be significant (P<0.001) (Table 3).

Effect on BMI

In trial group mean BMI was 28.58 ± 1.95 mg/dl before treatment and at the end of study it was 27.21 ± 2.18 mg/dl, showing mean reduction was 1.37 ± 0.23 mg/dl and which was found to be significant (P<0.001) (Table 3).

Effect on Serum Triglyceride

In test group mean serum triglyceride level was 181.4 ± 55.91 mg/dl before treatment and at the end of study it was 161.9 ± 52.73 mg/dl, showing mean reduction was 19.5 ± 3.18 mg/dl and which was found to be significant (P<0.001) (Table 3).

Effect on HDL

In trial group mean serum HDL level was 35.7 ± 6.68 mg/dl before treatment and at the end of study it was 44.16 ± 7.76 mg/dl, showing mean elevation was 8.46 ± 1.08 mg/dl and which was found to be significant (P<0.001) (Table 3).

Table 3: Various Changes of Objective Parameters in Trial group n=30.

S. No.	Parameter	Test Group		
		Before Treatment (Baseline)	After 90 Days	p- Value
1.	Weight of the Body	72.26 ± 6.39	68.77±7.2	<0.0001
2.	Waist Circumference	95.4 ± 5.53	93.68±5.5	<0.0001
3.	BMI	28.58 ± 1.95	27.21±2.18	<0.0001
4.	Serum Cholesterol	204.03±39.44	190.06±37.24	<0.0035
5.	Serum Triglyceride	181.4 ± 55.91	161.9±52.73	<0.0001
6.	HDL	35.7 ± 6.68	44.16 ± 7.76	<0.0001

Table 4: Safety Parameters (Test Drug).

Parameters		Assessments	
		BT	AT
		Mean±SEM	Mean±SEM
Hb%		12.03±1.55	12.34±1.07
RBC		4.25±0.78	4.32±0.75
TLC		7346.6±1395.5	7203.33±1090.5
DLC	P	65.23±5.05	67.56±3.88
	L	30.63±5.1	28.76±3.55
	B	0.2±0.4	0.1±0.3
	M	1.2±0.71	0.96±0.76
	E	2.8±1.8	3.13±2.09
ESR		29.53±9.59	24.43±5.81
S.Bilirubin		0.69±0.29	0.72±0.24
SGOT		35.23±5.25	31.63±4.82
SGPT		34.63±7.07	31.93±6.18
S.ALK Phosp		158.16±26.56	137.6±22.97
B.U		33.43±6.21	30.85±6.16
S.Cr		0.75±0.26	0.75±0.21
B.Sugar (F)		95.76±12.64	98±6.07
B.Sugar (PP)		128.7±14.96	127.06±13.72

DISCUSSION

Fart-e-tadassum-fid-dam (Hyperlipidemia) Abnormal increase in lipid profile beyond the normal limit nowadays became a major health problem and affecting people worldwide. The reason behind this apart from genetic disorder are diabetes mellitus and hypothyroidism. The Urbanization has provoked this condition and converted it into a pandemic worldwide. Sedentary lifestyle and excessive uses of fatty and fried food also associated with hyperlipidemia. Unani scholars were well versed about morbidity associated with hyperlipidemia therefore they have discussed planned regimens of diet as well as physical interventions. Many more drugs are also available both in single formulation as well as compound formulation to counter the hyperlipidemia. In this study the Unani compound drug are evaluated in terms of clinical efficacy to counter the hyperlipidemia as well as associated conditions.

The clinical study which is designed to evaluate the efficacy of Unani formulations which are time tested in terms of their efficacy to treat several metabolic conditions such as obesity, Type 2 Diabetes mellitus and also syndrome X.

The observed response in trial group may be credited to Hot and Dry temperament of the ingredients present in the test drug formulation (*Safoof-e-Muhazzil)*. By virtue of such temperament, these drugs might have increased the metabolism of liver by producing excessive hotness and dryness (*Hararat* and *Yaboosat*), and thus decrease is seen in the level of lipids like cholesterol, triglyceride, VLDL and LDL while improvement was seen in level of HDL. The observed results are in congruence with the description in the classical Unani literature, that excessive coldness and wetness (*Baroodat* and *Ratoobat*) in the body especially in liver, deranges metabolism leading to increased production of fat in the body and blood. This ultimately results in hyperlipidemia while temperament such as hotness and dryness helps in the process of metabolism of fat and serves as a source of energy for the body and hence causes reduction of Cholesterol in Blood.

As far as safety parameters are concerned, the difference in the hematological and biochemical parameters studied, before and after the treatment, was found to be statistically insignificant in both the groups. This signifies that the trial drug formulation are safe with the respective doses. For evaluation the efficacy trial drug formulation, paired 't' test was applied. significant difference was found in the reduction of hyperlipidemia. It can be concluded from above discussion that trial drug formulation is highly effective in improvement of all subjective and objective parameters of hyperlipidemia as well as in obesity.

CONCLUSION

Hyperlipidemia is a condition that continuously becoming a challenging threat towards mankind. It is also associated with cardiovascular and cerebrovascular disorders thus increasing morbidity and mortality. There are various lipid lowering agents from modern system of medicine but continuous use of these agents having adverse effect on body. So it is a need of time to find out a formulation and drug from alternative system of medicine with minimum side effect. The result of present clinical trial demonstrates that *Safoof-e-Muhazzil* is showing its effect on improvement in hyperlipidemia with no adverse effect. It is not showing its effect on hyperlipidemia only but also on metabolic syndrome. All the safety parameters for trial groups show that they are safe and no adverse effects are found on hepato- renal markers. This formulation can be recommended for such ailments but it will be better if carried out on different cross section of populations and on various centers to get multicentric data before recommending it for general population.

REFERENCES

1. Mishra, P.R., Panda, P.K., Apanna, K.C., Panigrahi, S. Evaluation of acute hypolipidemic activity of different plant extracts in Triton WR-1339 induced hyperlipidemia in albino rats. *Pharmacologyonline.*, 2011; 3: 925-934.
2. http://www.heart.org/HEARTORG/Conditions/Cholesterol/About Cholesterol/Hyperlipidemia_UCM_434965_Article.jsp#.VpSNM_I97IU; 1/12/2016; 5(25): 13AM.
3. Wells, G.B., Dipiro, J., Schwinghammer, T.,Hamilton, C. Pharmacotherapy Handbook, 7th edn, USA, TheMcgraw Hill Companies, 2007; 98-108.
4. Jeyabalan, S., Palayan, M. Antihyperlipidemic activity of Sapindusemarginatus in Triton WR-1339 induced albino rats.*Res. J. Pharm. Tech.*, 2009; **2**(2): 319-323.
5. Snow V, Barry P, Filterman N, et al.

"Pharmacologic and Surgical management of obesity in primary care: a clinical practice guideline from the American college of Physician." Ann Intern Med., 2005; 142(7): 525-531.
6. Souhami R. L. and Moxham J., *"Textbook of Medicine"*, 3rd Edition; Churchill Livingstone, US, 1997; 833-836.
7. Munjal Y. P. *et al., "API Textbook of Medicine"*, 9th Edition, Jaypee Brothers Medical Publishers (P) Ltd., 2012; 2: 1235-1239.
8. Munjal Y. P., *"Postgraduate Medicine (Recent advances in medicine)"*, Vol. Jaypee Brothers Medical Publishers (P) Ltd., XXI, 2007; 165-171.
9. Jalinoos "Fusool-e-Buqrat maa Talkhees Jalinoos" translated Ghulam Hussain kintoori. Press Munshi Nawal Kishore. Lucknow, 1903; 5-16.
10. Razi AMBZ. "Al Havi Fit Tib" (Urdu translation). Vol. 6 New Delhi: CCRUM, 1999; 183-84, 187-207, 215-288.
11. Jurjani Ismail."Zakheera Khwarzam Shahi"(Urdu translation by Hakeem Hadi Hussain Khan). Vol-8New Delhi: Idara Kitabu sh Shifa, 2010; 24-31.
12. Nafees-Ibn-e-"Mojiz-al-Qanoon", Urdu Translation, Kauser Chandpuri, Taraqqi Urdu Beauru, New Delhi, 1984; 99,459,460.
13. Antaki Daud. "Tazkiratu Uolil Albab" (Arabic). Vol-3. New Delhi: CCRUM, 2010; 139-40.
14. Eun-Mi Choi and Jae-Kawn Hwang." Anti-inflammatory, analgesic and antioxidant activities of the fruit of Foeniculum vulgare," Fitoterapia, 2004; 75: 557-565.
15. Rafeequddin Mohd. "Kanzul Advia Mufrada." Aligarh: Muslim University Press, 1985; 393,139,73,630,184,610,154.
16. Safiuddin S. A. "Unani Advia-e-Mufrada", Taraqqui Urdu Bureau, New Delhi, 1986; 153-154.
17. Kabeeruddin Hakeem. "Makhzanul Mufradat." Delhi: Ejaz Publishing House D;YNM:322,112,65,106,511,336,279.
18. Gupta AK, Sharma M. "Review of Indian Medicinal Plants" Vol 5. New Delhi: Medicinal Plants Unit ICMR, 2008; 575.