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Case Report

Hypertriglyceridemia treated with Fucus vesiculosus – A case series

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ABSTRACT

Hypertriglyceridemia is an independent risk factor of coronary heart disease (as established through various previously conducted studies) and it's rising incidence is creating a need for the immediate attention of it's management. Instead of focusing on the controversies involving the toxicity caused due to the long-term use of statin therapy in conventional mode of treatment, opting for a safer alternative system of treatment seems important. Five cases of diagnosed HTG, with triglyceride levels above 200 were treated with homoeopathic medicine - Fucus vesiculosus, in mother tincture form. The primary outcome measure was to evaluate the reduction in the blood triglyceride levels. All the five cases showed a reduction in triglyceride levels to normal range within 4 months of starting the treatment with the Fucus vesiculosus mother tincture. Also, it was observed that the borderline cholesterol levels and high LDL levels in 2 cases were found to reduce to normal. Treatment involving Fucus vesiculosus in cases diagnosed with HTG showed significant reduction in triglyceride levels along with other parameters of lipid profile. Further authentication of results with significant sample sizes may be taken up.
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1. Introduction

Hypertriglyceridimia (HTG) is a significant disease condition needing medical attention. However, it has been much neglected due to the burden of other untreatable diseases. The disease consequences pertaining to HTG are much alarming as those of coronary artery disease (CAD), if left untreated and unnoticed. HTG is a term which defines an abnormal level of triglycerides in the blood; in layman terminology called as rise in bad cholesterol which may be detrimental to the blood circulation and functioning of the heart. According to the National Cholesterol Education Program Adult Treatment Panel (NCEP ATP III) guidelines, the normal triglyceride level is < 150 mg/dL (Table 1) [1]. HTG is further classified into two categories: primary and secondary, based on their origin. Primary category is the result of various genetic defects leading to disordered triglyceride metabolism. Secondary causes are acquired, such as, high lipid diet, obesity, diabetes, hypothyroidism, and certain medications. However, HTG is typically not an isolated abnormality and is frequently associated with other lipid abnormalities and the metabolic syndrome (abdominal obesity, insulin resistance, low high-density lipoprotein (HDL), high triglyceride, and hypertension), which are linked to CAD [2]. On the other hand, many other studies have shown HTG to be an independent risk factor for Coronary Heart Disease (CHD) even after maintaining normal levels of HDL and LDL [3–5]. Furthermore, the NCEP considers HTG to be an independent risk factor for CHD and calls for medical treatment in cases where therapeutic lifestyle changes (TLC) are not adequate to reduce the triglycerides to appropriate levels [1].

The diagnosis of HTG can be arrived with fasting blood sample for lipid profile. The NCEP recommends obtaining a fasting lipid panel [total cholesterol, low-density lipoprotein (LDL), HDL, and triglycerides] from patients from the age of 20 years and repeated every 5 years [strength of recommendation (SOR)-C] [1].

The first-line treatment in conventional system of medicine is statin therapy which is undergoing a lot of criticism for side-effects on its long-term use in recent times [1]. Although controversies are prevailing, various studies reveal statin toxicity with long-term and high-dose statin use [6]. In this context, Homoeopathy can offer a better alternative in the treatment of HTG. Five cases treated with Homoeopathic medicine - Fucus vesiculosus (FV) in mother tincture form (procured from standard Homoeopathic pharmaceutical company - Sharda Boiron Laboratories Ltd (SBL)) were reported

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Table 1
Criteria proposed for clinical diagnosis of elevated triglyceride levels under fasting conditions.

NCEP ATP III (3)			The Endocrine Society 2010[a]		
Normal	<150 mg/dL	<1.7 mmol/L	Normal	<150 mg/dL	<1.7 mmol/L
Borderline-high triglycerides	150–199 mg/dL	1.7–2.3 mmol/L	Mild hypertriglyceridemia	150–199 mg/dL	1.7–2.3 mmol/L
High triglycerides	200–499 mg/dL	2.3–5.6 mmol/L	Moderate hypertriglyceridemia	200–999 mg/dL	2.3–11.2 mmol/L
Very high triglycerides	≥500 mg/dL	≥5.6 mmol/L	Severe hypertriglyceridemia	1000–1999 mg/dL	11.2–22.4 mmol/L
			Very severe hypertriglyceridemia	≥2000 mg/dL	≥22.4 mmol/L

[a] The criteria developed for the present guidelines focus on the ability to assess risk for premature CVD vs. risk for pancreatitis. The designations of mild and moderate hypertriglyceridemia correspond to the range of levels predominant in risk assessment for premature CVD, and this range includes the vast majority of subjects with hypertriglyceridemia. Severe hypertriglyceridemia carries a susceptibility for intermittent increases in levels above 2000 mg/dl and subsequent risk of pancreatitis; very severe hypertriglyceridemia is indicative of risk for pancreatitis. In addition, these levels suggest different etiologies. Presence of mild or moderate hypertriglyceridemia is commonly due to a dominant underlying cause in each patient, whereas severe or very severe hypertriglyceridemia is more likely due to several contributing factors.

here. FV preparation is given in the Indian Homoeopathic Pharmacopoeia (HPI) [7] and its source authority was found from Allen Encyclopaedia [8]. This drug has been taken up keeping in view the findings of a previous study [9] done on albino rats (cafetaria diet-induced and chemical-induced obese models simulating human models) where this drug has shown its positive role in the reduction of triglyceride levels and also on other parameters of lipid profile. Additionally, the toxicological studies of FV determine lack of any relevant acute toxicity with the oral administration of the product [10]. The traditional use of FV is in vogue since ancient times envisaging its health benefits in various forms. In the below reported five cases of HTG, FV was found effective by reducing the triglyceride levels to normal thus preventing the risk of cardiovascular disease.

2. Case presentation

The five cases that were taken had reported with high triglyceride levels of above 200. They fell under the high-risk category for cardiovascular diseases.

2.1. Case no.1

The patient was a 30-year-old male with HTG of recent origin and had not taken any other medication. He complained of breathlessness while ascending stairs and while exercising since 6 months. When routine investigations had been done, the results showed high triglyceride levels with borderline total cholesterol. All other generals were found to be normal.

2.2. Case no.2

The patient was a 39-year-old female diagnosed with HTG. She was obese with a history of occasional chest pain since 2 months. All the reports ECG, 2D Echo etc were found to be normal except the lipid profile where the triglyceride levels were high. The patient had a history of hypothyroidism and was on conventional medicine with thyroid levels under control.

2.3. Case no.3

The patient was a 48-year-old male diagnosed with HTG. He was obese with a history of diabetes and hypertension since 2 years and had been taking conventional treatment for the same. All the reports were found to be under normal limits except lipid profile where the triglyceride levels were high since 3 years. Even with the use of antilipidaemic medicines, the triglyceride levels were not showing any remarkable reduction. The patient was asked to stop the antilipidaemic medicines and to continue the oral hypoglycemic and antihypertensive drugs as usual.

2.4. Case no. 4

The patient was a 33-year-old male diagnosed with HTG. He had a history of hypothyroidism since 1 year and was taking conventional treatment to keep it under control. The patient has been diabetic since 2 years and was on oral hypoglycaemic drugs to keep sugar levels under control. During routine tests, the lipid profile showed an increase in triglycerides and LDL levels with borderline total cholesterol. The patient had not started any medication yet.

2.5. Case no. 5

The patient was a 50-year-old female diagnosed with HTG. She underwent a hysterectomy due to uterine fibroids 2 years ago. During routine blood tests, she was found to have high triglyceride levels with elevated total cholesterol. She had not started any other medication yet.

3. Diagnostic procedure and assessment

The condition was diagnosed through an assessment of triglyceride levels in the lipid profile done from fasting blood sample drawn by CHOD/POD liquid enzymatic method [11]. The lipid profile was repeated at entry and after every 4 months for assessment.

4. Therapeutic intervention and assessment

All the five cases as per classification of triglyceride levels fell under the high category [1] as shown in Table 1. They were all prescribed with FV mother tincture 15 drops (0.75 ml) in 30 ml of water thrice daily before meals for 4 months which falls under a safe dose as opined in British Herbal Compendium 1992 [12] as well as the Homoeopathic Materia Medica [13,14]. The lipid profile was repeated after 4 months and the triglyceride levels of the five cases showed a significant reduction to within normal limits. Along with this finding, it was also observed that the borderline cholesterol levels and high LDL levels in 2 cases were found to be normal.

5. Follow-up

As a follow-up, the patients were followed for one year. Two cases were treated during the year 2012–2013 and three cases during the year 2018–19.

The patients were asked to gradually taper the dosage of the medicine as follows: FV mother tincture 15 drops (0.75 mL) in 30 ml of water twice daily for one fortnight, once daily FV mother tincture

Table 2
Lipid profile of 5 cases at entry and 12th month.

Cases	Case No. 1		Case No. 2		Case No. 3		Case No. 4		Case No. 5	
Components of lipid profile	Entry	12th month	Entry	12th month	Entry	12th month	Entry	12th month	Entry	12th month
Total Cholesterol	240	196	240	190	260	210	150	170	300	210
Serum triglycerides	400	110	430	140	600	160	350	110	510	150
HDL	32	38	38	40	30	38	36	42	30	34
LDL	148	130	90	80	110	88	110	96	100	90
VLDL	30	32	40	38	36	34	46	40	40	36
T Cholesterol/HDL	7.5	5.2	6.3	4.75	8.7	5.5	4.2	4.0	10	6.1
LDL/HDL	4.6	3.4	2.7	2	3.7	2.3	3.1	2.3	3.3	2.6

15 drops (0.75 mL) in 30 mL of water for another fortnight, once in 3 days FV mother tincture 15 drops (0.75 ml) in 30 mL of water for the next fortnight, and once in a week for the next fortnight and stop completely for the next two months. The patients reported back after 4 months and the lipid profile was repeated. The triglyceride levels were found to be within normal limits.

The patients hereafter reported differently: 2 cases reported once in a month and 3 cases reported once in 2 months. They were asked to repeat the lipid profile after 4 months and only a placebo was prescribed for the 4 months. The lipid profiles of the five cases after four months were found to be normal. Hereafter, the patients were prescribed with Homoeopathic constitutional medicines based on their respective totality of symptoms and were advised to check their lipid profiles once in 4 months and report if any changes were observed. The lipid profile reports of all the cases (except for one), at entry and at 4th, 8th, and 12th months were done at 10–11 months' time and are given as Supplementary Figs. 1–5 and Table 2.

6. Discussion and conclusion

The prescription of FV mother tincture was given to the cases that had come to the OPD with immediate diagnosis and also those who either didn't start any other medication or had no reduction in the lipid profile even after taking conventional medicines for a period. Keeping in view a previous study [9] that had used this drug on albino rats where it had it's positive effect on the reduction of the triglyceride levels and on other parameters of lipid profile, FV mother tincture was prescribed. In a research perspective, FV, commonly named as seaweed or bladder-wrack possesses bioactive ingredients such as, fucoidan, phlorotannin, and fucoxanthin, which are known for their significant antioxidative, anti-obesity, anticoagulant, and other properties as explored *in vitro* and *in vivo* models. Fucoxanthin, especially, causes thermogenesis and lipolysis affecting the adipose tissue and influences the modification the lipid metabolism which may result in the reduction of cholesterol levels. Also, seaweeds are identified as potential rich sources of ingredients which have health-promoting and therapeutic effects for disease prevention [15,16]. Data available from existing basic research and clinical trials on homoeopathic mother tincture form of medicines showed effectiveness affirming positive results in the absence of a definitive mechanism of action; however, possibility of multiple mechanisms of action to be explored through further research cannot be excluded [17]. A plausible scientific action of Homoeopathic micro-doses has been well- explained by a proposed model based on nanostructures existence and nanoparticle actions which insists on logic and rationality confirmed by few modern nanoparticular studies on Homoeopathic medicines [18–20]. Thus, affirming the same, the treated cases showed a significant level of reduction in the triglyceride levels within 4 months. The positive role of FV mother tincture is seen in the above five cases. However, for further authentication of the results, studies with significant representative sample size such as, randomized controlled trials, may be taken up.

Informed consent

The consent to publish the information obtained from the patients.

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None.

Conflict of interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jaim.2021.04.014.

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