Fluoxetine Decreased Serum Total Cholesterol and Triglyceride Levels in a Hypercholesterolemic Patient with Postpartum Depression

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Objective: To report the case of a 28-year old hypercholesterolemic female with postpartum depression, whose triglyceride (TG) and total cholesterol (TC) levels decreased while being treated with fluoxetine.
Method: A 28-year old female, with a diagnosis of major depressive disorder with postpartum onset based on DSM-IV criteria, was hospitalized at a mental health hospital**.** Her past history included another episode of depression 4 months after giving birth to her second child, which was 12 years prior to her recent episode. Her serum total cholestrol and triglyceride levels were measured prior to the initiation of medication**.** Then fluoxetine was initiated at a daily dose of 20 mg and had been increased to 40 mg per day at the time of discharge. The lipid profile measurements was repeated at week 4 and 8 following treatment.
Results: Total cholesterol level was reduced from 242 mg/dL at baseline to 224 mg/dL at week 4 and to 202 mg/dL at week 8; triglyceride level was decreased from 516 mg/dL to 448 mg/dL at week 4 and to 404 mg/dL at week 8.
Conclusions: Fluoxetine may be an appropriate treatment for hyperlipidemic women with postpartum depression..
Key Words:
Cholesterol, Depression, Fluoxetine, Postpartum period, Triglycerides

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Fluoxetine is a selective serotonin reuptake inhibitor (SSRI) that has been successfully used to treat depression for many years. Fluoxetine was discovered in early 1970s and introduced in the United States in 1988. This drug has become one of the most widely prescribed antidepressants since its introduction. Among SSRIs, fluoxetine has the longest half-life of about 26-220 hours due to its active metabolite, norfluoxetine. Fluoxetine is metabolized by cytochrome P450 (CP450) 2D6, 3A4 and 2C9 isoenzymes and is an inhibitor of CP450 2C9/19, 2D6, and 3A4 isoenzymes (1).

We searched the Medline and PsycLit from 1970 to 2004 and could not find any information on the effects of fluoxetine on serum total cholesterol(TC) and triglyceride(TG) in patients with hyperlipidemia. However, it has been reported that serum TG was reduced in obese patients with diabetes mellitus after receiving fluoxetine. It should be noted that body weight was also reduced in these patients (2). On the other hand, in a case report, citalopram and to a lesser extent fluoxetine were suspected to cause severe hypertriglyceridemia (3).

Two of the authors of this case report were involved in a double blind study that compared the effects of fluoxetine and imipramine on serum TC and TG levels of 43 patients with depressive disorders, who did not suffer from hypercholesterolemia or diabetes mellitus. Serum TC and TG levels were measured at baseline and at weeks 4 and 8 of the study. Fluoxetine decreased TC and TG levels of patients in that study (4).

The patient that will be presented below was suffering from post-partum depression and was introduced to enter the above study. She was excluded from that study due to her hypercholesterolemia (her FBG was within the normal range). However, based on her psychiatrist's clinical judgment, fluoxetine was initiated for her. Patient's TC and TG levels were measured after 4 and 8 weeks following the initiation of fluoxetine.

We report what we believe to be the first case of decreased serum TC and TG levels due to fluoxetine in a hypercholesterolemic female with postpartum depression.

Case Report

A 28-year old female, with a diagnosis of major depressive disorder with postpartum onset based on DSM-IV criteria, was hospitalized at a mental health hospital in Tehran, Iran in December 1999. Her symptoms started 2 weeks after labor and included crying, agitation, loss of energy and interest regarding her daily activities, insomnia, loss of appetite, and loss of libido. She had not been receiving any medication for at least 2 years prior to her admission to the hospital. Her past history included another episode of depression 4 months after giving birth to her second child, which was 12 years prior to her recent episode. She had given birth to 4 children and she did not suffer from depression after giving birth to her first and third children. In her last episode (12 years ago), she was seen by a psychiatrist in the city of Tabriz, and received imipramine for a short time but could not continue the medication due to a skin rash. At that time imipramine was discontinued and another antidepressant was started and maintained for 2 years. She could not remember the name of the medication, but from the description she provided the authors could reasonably rule out the administration of fluoxetine. The authors could not obtain any information regarding her past hospitalization except for what the patient and her family gave.

Her TC and TG levels were measured prior to the initiation of medication at the hospital. Her baseline serum TC and TG were 242 mg/dL and 561 mg/dL respectively. She weighed 68 kilograms at the time of admission. Fluoxetine was initiated at a daily dose of 20 mg and increased to 40 mg per day at the time of discharge (30 days after admission). She also received evening doses of oxazepam 10 mg during her stay at the hospital. At the time of discharge, she was asked to take 40 mg fluoxetine per day and 10 mg of oxazepam as needed, until her next visit in 4 weeks. The patient was seen at the ambulatory care of the hospital for a follow-up 4 weeks after discharge (8 weeks after initiation of fluoxetine).

Serum TC and TG levels were measured at weeks 4 and 8 at the same laboratory where the baseline levels were measured. TC level had decreased from 242 mg/dL at baseline to 224 mg/dL at week 4 and to 202 mg/dL at week 8. In addition, the TG blood level decreased from 516 mg/dL to 448 mg/dL at week 4 and then was reduced to 404 mg/dL at week 8. The reduction of both TC and TG levels were significant. It should be noted that the patient's weight did not change significantly during the 8 weeks of follow up. Her weight was increased by 1 kilogram, from 68 kg to 69 kg, during the 8-week follow-up.

Discussion

Hypercholesterolemia is considered to be a risk factor for coronary heart disease (CHD)(5). Sex, age, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, and plasma triglyceride levels are among independent risk factors for "Extent of coronary atherosclerosis", defined as the number of coronary artery lesions with stenosis of 50% or more (6).In a double blind study, the effects of fluoxetine and imipramine on serum TC and TG levels of 43 depressed patients who did not suffer from hypercholesterolemia or diabetes mellitus were compared. TC and TG levels were measured at baseline and at weeks 4 and 8 of the study. Fluoxetine use resulted in decreased TC and TG levels (4).

Hypertriglyceridemia and hypercholesterolemia may be important factors to consider when choosing an antidepressant, especially, for treating a patient with other risk factors for cardiovascular disease.

This case report suggests that fluoxetine may be a useful antidepressant for hyperlipidemic women with postpartum depression..

Further studies and reports are needed to confirm the effects of fluoxetine on serum TC and TG levels.

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