A case of tamoxifen-induced hypertriglyceridemia

Tamoxifen was originally known as an antiestrogen but subsequent experience has shown that it has agonistic activities on bone, liver and endometrium. The effects of estrogen replacement therapy on lipid metabolism show slight elevation of serum triglycerides (TG) and high-density lipoprotein (HDL) with reduction in the levels of low-density lipoprotein (LDL) and lipoprotein(a). Whereas tamoxifen is known to decrease total cholesterol (TC), LDL and lipoprotein(a) it does not increase HDL and triglycerides in human beings. Although, there are reports that tamoxifen leads to hypertriglyceridemia, it is not widely known that tamoxifen, clinically known for its antiestrogenic properties may have a paradoxical estrogenic effect on lipid metabolism. Hence we feel this case of tamoxifen-induced hypertriglyceridemia is worth reporting.

A 56 year-old, average built lady (50 kg, wt), postmenopausal since 1½ years, underwent modified radical mastectomy for infiltrating duct carcinoma of left breast (T2 N0 M0). She was advised an adjuvant therapy in the form of external beam radiation which was followed 2 months later by tamoxifen (20 mg once daily per orally) as her estrogen receptor status was 30%+ve. She had no history of familial hypertriglyceridemia, with her most recent recorded triglyceride level being 450 mg/dl which further increased to 600 mg/dl and 800 mg/dl at the 6th and 9th month of tamoxifen therapy respectively. No change was observed in cholesterol (200 mg/dl), LDL (100 mg/dl) and HDL (37 mg/dl). After this the patient was restarted on tamoxifen but at a reduced dose i.e., 10 mg orally once daily. The reduced dosage of tamoxifen i.e. 10 mg/day resulted in a fall in TG levels from 450 mg/dl to 360 mg/dl after four weeks. However, in the interest of the patient, along with tamoxifen (10 mg/day), atorvastatin (20 mg once daily orally) was also added. Further rechallenge with 20 mg orally once daily tamoxifen was not done in the interest of the patient, fearing reappearance of fatal hypertriglyceridemia and ethical constraints.

Thus, the appearance of hypertriglyceridemia in a patient taking tamoxifen could not be explained by a concurrent disease, drug or chemicals and a dechallenge reduced the state of hypertriglyceridemia. Hence, this adverse drug reaction (ADR) can be labeled as Probable/Likely as per causality assessment. Since this ADR seems dose-dependent as well as it increased with duration of therapy, it could be labeled as Type I class of ADR. This was in agreement with the previous study. Tamoxifen is known to have no effect on triglyceride levels and estrogen therapy is known to produce modest increase in triglycerides. Thus, partial agonistic activity of tamoxifen may probably be responsible for this hypertriglyceridemia. Hence, it is worthwhile reporting a relatively rare adverse reaction to a commonly used drug in breast cancer so that the ADR can be monitored in a larger group of patients for confirmation. Furthermore, we suggest from the present case report to use tamoxifen cautiously in patients who have normal triglyceride levels as well as in those having already raised levels and to maintain strict vigilance by periodically monitoring complete lipid profile to avoid this severe dangerous lipid abnormality.

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References


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