Unusually High Prolactin Level for Medication-Induced Hyperprolactinemia: A Case Report

İlaca bağlı Hiperprolaktinemi için Alışılmadık Derecede Yüksek Prolaktin Değeri: Vaka Sunumu

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Abstract

Hyperprolactinemia has a number of etiologies, including physiological, pathological and pharmacological causes. Hyperprolactinemia is frequently associated with the use of certain medications. Patients using medications known to cause hyperprolactinemia generally develop a mild form of the condition, and the prolactin level rarely exceeds 100 ng/mL in these cases. We report a case of a 43-year-old woman with an extremely high prolactin level in medication-induced hyperprolactinemia caused by a combination of an antipsychotic (sulpirid) and an antidepressant (paroxetine).

Key Words: Antidepressive agents, antipsychotic agents, hyperprolactinemia

Özet

Hiperprolaktineminin fizyolojik, patolojik ve farmakolojik bir çok nedeni mevcuttur. Hiperprolaktinemi belirli ilaçların kullanımı ile siklikla ilişkilidir. Ancak ilaca bağlı hiperprolaktinemi genellikle hafif yükselmelere neden olup nadiren 100 ng/mL değerinin üstüne çıkar. Bu vaka sunumunda, 43 yaşında bayan bir hastada antipsikotik (sulpirid) ve antidepresan (paroksetin) kombinasyonuna bağlı gelişen, ilaca bağlı hiperprolaktinemi için oldukça yüksek kabul edilecek değerlerde, bir hiperprolaktinemi olsusu rapor edildi.

Anahtar Kelimeler: Antidepresif ajanlar, antipsikotik ajanlar, hiperprolaktinemi

Introduction

Prolactin is a protein produced in the lactotroph cells of the anterior pituitary gland. Secretion is pulsatile and increases with sleep, stress, pregnancy and chest wall stimulation or trauma. Prolactin production can be stimulated by the hypothalamic peptides, thyrotropin-releasing hormone (TRH) and vasoactive intestinal peptide (VIP). Normal fasting values are generally less than 25 ng/mL, depending on the individual laboratory.

Hyperprolactinemia is the most common endocrine disorder of the hypothalamic-pituitary axis. It is necessary to determine the cause in confirmed cases of hyperprolactinemia. Determination of the cause involves a careful history and examination, laboratory tests and diagnostic imaging of the sella turcica. Pathological hyperprolactinemia is defined as a consistently elevated serum prolactin level in cases in which the physiological causes of prolactin hypersecretion mentioned above have been excluded. Pathological causes include lactotroph adenomas, other hypothalamic and pituitary disorders, pregnancy, medication use, hypothyroidism, chest wall injury, and chronic renal failure. A number of drugs may cause hyperprolactinemia. Pharmacological agents that inhibit dopamine synthesis or action, such as L-methyldopa, antiemetics or antipsychotics, frequently cause increased serum prolactin. The magnitude of the elevation varies with the drug. Most prolactin concentrations lie between the upper limits of normal and 100 ng/mL, the level at which there is the largest differential diagnosis.

Case Report

A 43-year-old woman was referred to the endocrinology clinic for investigation of her clinical presentation of mastalgia. She had been taking paroxetine (20 mg once a day) and sulpirid (50 mg twice a day) for 15 days for the treatment of depression.

In our clinic, the physical and neurological examinations of the patient were normal. The complete blood count values were as follows: white blood cell count 4,600/mm³, hemo-
globin 13.3 g/dL, hematocrit 42.1% and platelets 193000/μL. 
The basic serum levels of the biochemical parameters were 
as follows: sodium 136 mmol/L, potassium 3.9 mmol/L, blood 
urea nitrogen 10.8 mg/dL, creatinine 0.6 mg/dL, blood glucose 
82 mg/dL, albumin 4.1 g/dL, total protein 6.9 g/dL, total biliru-
bin 0.25 mg/dL, calcium 8.1 mg/dL, and phosphorus 3.3 mg/ 
dL. The hormonal parameters were as follows: TSH 1.14 uIU/
ml, IGF-1 130 ng/mL, and GH 0.076 ng/mL. The urinalysis was 
normal. The analyzed prolactin levels were 311 ng/mL and 376 
ng/mL. The patient’s pituitary MRI was normal (Figure 1, 2). She 
was not pregnant, and she denied having any other precipitat-
ing factor for hyperprolactinemia.

Medication-induced hyperprolactinemia was suspected, 
and after psychiatric consultation, paroxetine and sulpirid 
were stopped. After 15 days, her prolactin level was 11 
ng/mL. After withdrawing the medications, her symptoms 
resolved, and the diagnosis of medication-induced hyperpro-
lactinemia was confirmed.

Discussion

Hyperprolactinemia is defined as a serum prolactin level 
above the normal range (25 ng/mL in premenopausal women 
and 15 ng/mL in men and postmenopausal women) [1]. 

Figure 1. Normal MRI findings. 

Hyperprolactinemia is a very common condition frequently 
associated with the use of certain medications [2-4]. 
The investigation of hyperprolactinemia in people using antipsy-
chotic medications is complicated because of the well-known 
association between medications and hyperprolactinaemia 
[4]. In patients taking medications known to cause hyperp-
rolactinemia, it is critical to establish that the medication is 
the cause and that the cause is not a structural lesion in the 
hypothalamic/pituitary area.

Hyperprolactinemia induced by medication should return 
to normal after the withdrawal of the offending drug. It would 
be reasonable to arrange further investigation if the prolactin is 
elevated above 150 ng/mL or does not return to normal after 
the withdrawal of the offending drug, at which point the likeli-
hood of a prolactinoma would be increased significantly.

Women taking oral contraceptives or hormone replace-
ment therapy develop mild hyperprolactinemia (<40 ng/mL) 
[5-7]. Tricyclic antidepressants and monoamine oxidase inhibi-
tors cause mild elevation of serum prolactin, but selective 
serotonin reuptake inhibitors rarely lead to prolactin levels 
outside the normal range [2, 7, 8]. A number of drugs, including 
metoclopramide, the phenothiazines, the butyrophenones and 
risperidone, block the dopamine D2 receptors and can be asso-
ciated with prolactin levels above 100 ng/mL [7, 9-12]. 

To our knowledge, a prolactin level above 350 ng/mL 
caused by a drug is extremely rare. A serum prolactin level 
above 250 ng/mL is typically due to a prolactinoma, particu-
larly a macroadenoma instead of a microadenoma [1, 7].

Figure 2. Normal MRI findings.
In conclusion although no specific test can assist in determining the etiology of hyperprolactinemia, a prolactinoma is likely if the prolactin level is greater than 250 ng/mL. In cases of patients using medications known to cause the hyperprolactinemia, medication-induced hyperprolactinemia must be considered.

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References