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Case Report

Spironolactone-induced gynecomastia: a case report

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ABSTRACT

The term "gynecomastia" refers to the benign growth of glandular breast tissue in men. In older men, adolescents, and newborns, physiological gynecomastia is common. Although it is self-limited, it can be managed to reduce both physical and emotional discomfort. Chronic conditions (such as cirrhosis, hypogonadism, and renal insufficiency), drug use (including prescription, over-the-counter, and illicit drugs), and tumors are rare causes of nonphysiologic gynecomastia. Exogenous estrogens, antiandrogens, 5-alpha reductase inhibitors, spironolactone, and cimetidine are the active ingredients that are known to cause gynecomastia the most frequently. A patient's medical history is crucial in diagnosing drug-induced gynecomastia. Treating the underlying disease and stopping contributing medications are the cornerstones of treatment. In certain cases, gynecomastia can be treated with surgery and medications such as estrogen receptor modulators. Early intervention and patient-directed care are important aspects of treatment. We describe the pathogenetic mechanism of spironolactone-induced gynecomastia and provide a case report of a 52-year-old male patient.

Keywords: Gynecomastia, Spironolactone, Estrogen receptor modulators, Spironolactone-induced gynecomastia, Drug-induced gynecomastia

INTRODUCTION

Gynecomastia is defined by a benign proliferation of glandular tissue in the breasts of men, resulting in a concentric enlargement of one or both breasts.[1] Gynecomastia's origin has been explained by numerous theories brought forward by researchers; however, a number of medicines and environmental factors, including those that can interact with estrogen receptors either agonistically or antagonistically, can also induce gynecomastia.[2] Gynecomastia is a well-known side effect of the anti-androgen spirolactone. It might function by raising the synthesis of estradiol and increasing the metabolic clearance of testosterone in addition to releasing androgen from the androgen receptor and sexual hormone-binding globulin.[3] Antibiotics, anti-ulcer medications, chemotherapy, cardiovascular medications, psychotropic medications, and substances of addiction are among the various medications that have been known to cause gynecomastia.[4] Here we report a case of a 52-year-old male patient with spironolactone-induced gynecomastia.

CASE REPORT

A 52-year-old male patient was referred to the General Medicine Department of Gandhi Hospital in Hyderabad with the chief complaint of chest pain in the nipple area of both sides with swelling for 6 months. He was diagnosed with ischemic heart disease with myocardial infarction and moderate LV dysfunction 4.5 years ago. He had a history of smoking and alcohol consumption. He was treated with statins, B-blockers, angiotensin converting enzyme inhibitors, namely, aspirin, clopidogrel, atorvastatin, carvedilol, enalapril, spironolactone, ranolazine, glyceryl

trinitrate, and other nutritional supplements. On the present physical examination, enlargement of the male breast was present (gynecomastia). Medical history supports that the patient had received Spironolactone 25 mg/day from January 22, 2019 for myocardial infarction, and from 6 months on, there was a gradual enlargement of the breast observed with no pain. The patient had been taking spironolactone 25 mg/day for 4.5 years as a part of his medication regimen for ischemic heart disease with myocardial infarction and moderate LV dysfunction. Based on the physical examination and the relationship between the drug and the onset of gynecomastia, a diagnosis of drug-induced enlarged tender gynecomastia was made.

Withdrawal of the culprit drug and tablet Inderol 40 mg/day were given along with tablets Aceclo Plus 100 mg BD and paracetamol 650 mg TID, which led to complete and permanent remission of the disease. The patient was informed to limit alcohol consumption and to continue the rest of the previous treatment. Rechallenge was done to avoid unnecessary risk to the patient.

DISCUSSION

The clinical definition of gynecomastia is a widespread increase in the size of the male breast tissue accompanied by a hard or rubbery mass that extends symmetrically and concentrically from the nipple and a histopathologically benign proliferation of glandular male breast tissue.[5] Diagnosing the cause of gynecomastia requires a physician to understand the hormonal components of breast development. Because the levels of estrogen and androgens in males are in equilibrium, gynecomastia can be caused by any disease or medication that alters these hormones' blood levels. This results in an increase in the estrogen to androgen ratio.[6] Gynecomastia caused by drugs is more common in adults than in children and adolescents. Examples of drugs that might cause this condition include antiretroviral drugs for HIV, calcium antagonists for hypertension, and antiandrogen therapy for prostate cancer. Numerous different drugs have been connected to instances of gynecomastia. Growth hormones, antibiotics (ketoconazole, metronidazole, and isoniazid), and antiulcer drugs (cimetidine, ranitidine, and omeprazole) have also been connected to this phenomenon.[7] Spironolactone induces gynecomastia by lowering testosterone synthesis, increasing the peripheral conversion of testosterone to estradiol, and displacing estradiol from sex hormone-binding globulin. When treatment is stopped, gynecomastia usually goes disappear.[8] Along with spironolactone, additional drugs that may aggravate male gynecomastia were also recommended, including atorvastatin, carvedilol, enalapril, and ranolazine. Gynecomastia caused by spironolactone, however, is far more typical. In the ADR database, there were 2,862 cases with at least one statin listed as the suspected medicine (of which 1,334 involved a male patient). Out of the eight complaints, the chosen term "gynecomastia" was identified, along with a suspected medicine being a statin (four instances included atorvastatin, and four involved rosuvastatin).[9] One common beta blocker used to treat heart failure and hypertension is nebivolol. These individuals may also be on spironolactone, digoxin, nifedipine, verapamil, diltiazem, captopril, or enalapril, which can occasionally cause gynecomastia as an adverse reaction. Gynecomastia has to be first diagnosed as an adverse reaction of medicine if any of these have been taken. It can be challenging to identify the specific medication that causes gynecomastia because many of the drugs mentioned above are utilized; however, digoxin and spironolactone are two potential choices.[10]

CONCLUSION

Assessing the risk of gynecomastia is necessary when spironolactone is used for extended periods of time, mainly because of cardiovascular disease. Certain other commonly prescribed medications in cardiology, such as angiotensin-converting enzyme inhibitors and B-blockers, may also increase the risk of gynecomastia if taken longer than usual or at higher doses. When a patient is impacted, the doctor ought to think about getting a complete medical history and conducting an examination that can lead to an accurate diagnosis. Resolving the issue by stopping the offending drug can spare the patient from the physical discomfort, anxiety, and humiliation associated with being under investigation. When recommending this medication, doctors should advise patients about this side effect. Inderol is a substitute that can be used instead. When prescribing a medication, a doctor should talk about the serious adverse drug reactions that can occur. If a patient experiences any persistent side effects, they should stop taking the medication and see a doctor.

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REFERENCES

1. Braunstein GD. Clinical practice. Gynecomastia. N Engl J Med. 2007;357:1229-37.
2. Thompson DF, Carter JR. Drug-induced gynecomastia. Pharmacotherapy. 1993;13:37-45.
3. Cuculi F, Suter A, Erne P. Spironolactone-induced gynecomastia. CMAJ. 2007;176:620.
4. Deepinder F, Braunstein GD. Gynecomastia: incidence, causes and treatment, Expert Review of Endocrinology & Metabolism. 2011;6(5):723-30.
5. Cuhaci N, Polat SB, Evranos B, Ersoy R, Cakir B. Gynecomastia: Clinical evaluation and management. Indian J Endocrinol Metab. 2014;18(2):150-8.
6. Swerdloff RS, Ng JCM. Gynecomastia: Etiology, Diagnosis, and Treatment. [Updated 2023 Jan 6]. In: Feingold KR, Anawalt B, Blackman MR, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000.

7. Goldman RD. Drug-induced gynecomastia in children and adolescents. Can Fam Physician. 2010;56(4):344-5.
8. Haynes BA, Mookadam F. Male gynecomastia. Mayo Clin Proc. 2009;84(8):672.
9. Roberto G, Biagi C, Montanaro N. Statin-associated gynecomastia: evidence coming from the Italian spontaneous ADR reporting database and literature. Eur J Clin Pharmacol. 2012;68:1007-11.
10. Köklü E, Arslan Ş, Yüksel İÖ, Bayar N, Demirci D. Nebivolol-induced gynecomastia. J Pharmacol Pharmacother. 2015;6(3):166-8.

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