Introduction: Tamsulosin is a selective adrenergic α1A receptor (AA1AR) antagonist most often

used in the management of symptoms of benign prostatic hypertrophy (BPH) [1]. Improvement

in sexual function has been described with the use of tamsulosin [2, 3]. AA1AR antagonists

induced priapism is a very rare side effect, the treatment of which is the use of intracavernosal

phenylephrine (a selective alpha receptor agonist). Cardiac monitoring is advised after

treatment due to hemodynamic effects of phenylephrine. We present a case of acute coronary

syndrome NSTEMI in a patient following phenylephrine injection for the treatment of priapism[4].

Case Report: A 71 year old African-American male with past medical history of BPH, diabetes

mellitus and hypertension presented to the emergency department with persistent painful penile

erection for 16 hours. Ice packs and cold water application did not relieve the erection. He was

taking tamsulosin for BPH for past XX years. The patient stated that he took double dose of the

tamsulosin (0.8 mg) prior to developing painful priapism. He had no history of sickle cell

disease, perineal trauma, sildenafil use, previous episodes of priapism, illicit drug and/or alcohol

abuse. Physical examination revealed stable vitals signs. Genitourinary examination revealed

erect penis, tender to palpation and no erythema. Electrocardiogram (EKG) done at the time of

presentation showed XXX. He was treated with terbutaline 10 mg orally, which did not relieve

his symptoms. Intravenous hydration and pain management was initiated. Corpus cavernosum

blood sampling was performed which revealed pCO2 of 214.0 mm Hg, pH 6.65 and pO2 33.6

mm Hg. Right corpus callosum was irrigation with only transient improvement in his symptoms.

Phenylephrine was injected into the corpus cavernosum (300 microgram every 5mins x 4

doses), following which his symptoms subsided. Cardiac monitoring of the patient revealed

tachycardia at a rate of 120 beats/min. Repeat EKG revealed tachycardia and ST segment

depression in lead II and V6. Blood work up showed elevated Troponin I (Peak of 0.628 ng/mL)

consistent with a NSTEMI. He was started on full dose anticoagulation. Transthoracic

echocardiography revealed normal ejection fraction (65%). Cardiac catheterization was

performed which revealed single vessel disease. Balloon angioplasty with stent placement was

performed on the 99 % ostial lesion of the inferior branch and intermediate branch of the first

obtuse marginal. A dual antiplatelet therapy with aspirin 81mg and ticagrelor 90 mg daily was

initiated. He was started on statins, enalapril, nitroglycerin, insulin and metformin for

management of CAD, HTN and DM respectively. Tamsulosin was restarted on day five of

hospitalization at a dose of 0.4 mg daily; he was discharged on the same day after six hours

after taking tamsulosin. Patient was educated on medication compliance and undesirable effect

of overdoing medications.

Discussion:

BPH affects 50% of men between the age group of 51-60 years of age and up to 90% of men

above the age group[5] of 80 years[5]. Men greater than 45 years of age are at increased risk of

coronary artery disease (CAD) [6]. Tamsulosin is an AA1AR antagonist, which is the preferred

medication for the management of symptoms of BPH[8]. The most common side effects are

headache, dizziness, hypotension and retrograde ejaculation. Priapism is a very rare side effect

of AA1AR antagonists, till date only 14 cases have been reported [XX]. The mechanism of

AA1AR antagonists induced priapism is less clearly understood, but is attributed to decreasing

sympathetic drive in pelvic neurons at postsynaptic level resulting in a surge of parasympathetic

stimulation that leads to priapism [9].

Intracavernosal blood gas analysis is required to differentiate between ischemic (IP) and non-

ischemic priapism (NIP), which dictates treatment. Delayed treatment of IP may result in

permanent scarring of corpus cavernosum resulting in erectile dysfunction. Once the diagnosis

of IP is established therapeutic aspiration (with or without irrigation) or intracavernous injection

of sympathomimetics is the recommended intervention. If IP persists, repeated intracavernous

injection of sympathomimetics should be attempted prior to opting for surgical decompression.

Phenylephrine is the preferred sympathomimetic because of its safety profile. Despite its

favorable safety profile, cardiac monitoring is recommended following its use due to its

hemodynamic effects of hypertension, headache, reflex bradycardia, tachycardia, palpitations

and cardiac arrhythmia [10, 11]. Fewer cardiovascular side effects of phenylephrine are

attributed to AA1R specificity, also it does not affect epinephrine release from adrenals [9, 11].

Oral sympathomimetics like terbutaline and pseudoephedrine have no role either in the

management of IP or persistent erection related to self-injection therapy for impotence [13, 14].

Our literature review revealed 14 case reports related to AA1AR antagonist induced priapism of

which prazosin accounted for 6 cases, followed by tamsulosin three, terazosin two, doxazosin

and alfuzosin one each. Intracorporeal phenylephrine has a highly efficacy of 100% as reported

by Dittrich et al and 97.78% as reported by Muruven et al; and both studies reported 100%

safety profile [12, 15]. .

Our report showed that clinicians should be aware of possibility of tamsulosin induced priapism

and potential cardiovascular side effect of intracorporeal phenylephrine which is commonly used

in its management.

Conflict of interests: The authors declare that there is no conflict of interests concerning

the publication of this paper.

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