Ocular Manifestations of Sildenafil citrate: A Rare Case Report

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ABSTRACT
Sildenafil citrate a Phosphodiesterase type-5 (PDE-5) inhibitor is well tolerated and efficacious treatments for male erectile dysfunction that currently rank among the best-selling drugs worldwide. Non-artenitic anterior ischemic optic neuropathy (NAION), a cause of decreased vision including permanent loss of vision, has been reported rarely post-marketing in temporal association with the use of phosphodiesterase type 5 (PDE5) inhibitors, including MANFORCE. Most, but not all, of these patients had underlying anatomic or vascular risk factors for developing NAION, including but not necessarily limited to: low cup to disc ratio (“crowded disc”), age over 50, diabetes, hypertension, coronary artery disease, hyperlipidemia and smoking. It is not possible to determine whether these events are related directly to the use of PDE5 inhibitors, to the patient’s underlying vascular risk factors or anatomical defects, to a combination of these factors, or to other factors. It also exerts a minor inhibitory action against PDE6, which is present exclusively in rod and cone photoreceptors. At higher doses, sildenafil causes mild and transient visual symptoms in a minority of patients (mainly blue tinge to vision, increased brightness of lights) causing definite effect in transient, mild impairment of colour discrimination. But in this case, rare types of allergic ocular manifestations are mentions below, which are not reported before.

Key Words: PDE-5, PDE-6, Colour Vision, Sildenafil Citrate.

INTRODUCTION
Sildenafil citrate a Phosphodiesterase type-5 (PDE-5) inhibitor is well tolerated and efficacious treatments for male erectile dysfunction that currently rank among the best-selling drugs worldwide.1

Sildenafil enhances the effect of NO by inhibiting phosphodiesterase type 5 (PDE-5), which is responsible for degradation of cGMP in the corpus cavernous. Sildenafil has no direct relaxant effect on isolated human corpus cavernous. When sexual stimulation causes local release of NO, inhibition of PDE-5 by sildenafil causes increased levels of cGMP in the corpus cavernous, resulting in smooth muscle relaxation and inflow of blood to the corpus cavernosum.2 In addition to human corpus cavernosum smooth muscle, PDE-5 is also found in other tissues including platelets, vascular and visceral smooth muscle and skeletal muscle, brain, heart, liver, kidney, lung, pancreas, prostate, bladder, testis and seminal vesicle. The inhibition of PDE-5 in some of these tissues by sildenafil may be the basis for the enhanced platelet antiaggregatory activity of NO observed in vitro, an inhibition of platelet thrombus formation in vivo and peripheral arterial-venous dilatation in vivo.3 Non-artenitic anterior ischemic optic neuropathy (NAION), a cause of decreased vision including permanent loss of vision, has been reported rarely. Most, but not all, of these patients had underlying anatomic or vascular risk factors for developing NAION, including but not necessarily limited to: low cup to disc ratio (“crowded disc”), age over 50, diabetes, hypertension, coronary artery disease, hyperlipidemia and smoking.4,5 It also exerts a minor inhibitory action against PDE-6, which is present exclusively in rod and cone photoreceptors.9 At higher doses, sildenafil causes mild and transient visual symptoms in a minority of patients (mainly blue tinge to vision, increased brightness of lights) causing definite effect in transient, mild impairment of colour discrimination. Sildenafil does not affect visual acuity, visual fields, and contrast sensitivity.10

CASE REPORT
A 35-year old young male patient come to our department with complaining of sudden onset of pain, foreign body sensation, watering, and diminution of vision OS since 04 days back. He was apparently alright 04 days before, and started with sudden onset of loss of vision both eyes for a half an hour at early morning, but gradually improved vision in right eye and remain diminution of vision in left eye. Subsequently developed, pain, lid oedema, redness, watery discharged photophobia to left eye. He reported to an ophthalmologist elsewhere and diagnosed as a...
whole corneal epithelial defect OS, VA was 6/9 OD, 6/36 OS, normal colour vision and was treated by putting banded contact lens OS, topical antibiotics, topical NASID, in both eyes. On history, first time he had taken a tab. of sildenafil citrate 100 mg at that night.

On examination, general condition was good, vitals parameters were within normal limit, he had best corrected visual acute, 6/6 OD, 6/12 OS normal colour vision, IOP within normal limit. Mild lid edema, mild both superficial and deep mixed conjunctiva congestion (fig: A), banded contact lens in place (fig: B, black arrow mark), fundoscopically mild hyperemia of the disc (papilitis) both eyes and rest feature are within normal limit.

The patient was admitted with prescribing tab. prednisolone 30mg bid after food with PPI for five days and gradually tapering the doses of 10mg up to 10 mg once daily and advice to continuing the rest drugs.

Next follow up day (fig:C), decrease of both sign and symptom and removing the banded contact lens found filling of epithelial defect, decrease of hyperemic disc, improved BCVA up to 6/6 OD,6/9 OS and advice to continue the same medicine.

On 7th follow up day, improved all sign, symptom, optic disc normal, with BCVA 6/6 OD,6/6 OS normal colour vision, advise to continue the medicine and ask to report after 15 days then discharged the patient from hospital.

**DISCUSSION**

Sildenafil works by inhibiting the enzyme PDE-5 by occupying its active site. This means that cGMP is not hydrolysed as fast and this allows the vascular smooth muscle to relax and get dilated. Sildenafil is a potent and highly selective inhibitor of PDE-5. So it may affect the conjunctival vessels and get congested.6,7 The common ocular side effect of sildenafil citrate is Non-arteritic anterior ischemic optic neuropathy (NAION) ever been reported frequently, a cause of decreased vision including permanent loss of vision.8 In this case the transient loss of vision for a half an hour may due to Non-arteritic anterior ischemic effect to the disc which is an evidence of hyperemia of the discs (papilitis). Associated with other allergic Ocular involvements were, lid edema, mixed superficial and deep conjunctival congestion, corneal epithelial defect, those are reflected in this case thought to be rare not reported before. Allergic reactions occur within 12 hrs by drug sildenafil citrate (100mg) induced late onset type-1 hypersensitivity reaction. Corneal epithelial defect may be due to erosion by swollen congested lid rubbing and associated infection. Banded contact lens was used for healing epithelial defect by reducing the friction of congested lids along with topical antibiotic and NASID relieving pain.

Tab prednisolone 30 mg bid with PPI prescribed for reducing papilitis (hyperemia disc) and tapering the doses resulting good response of increase VA up to 6/6 both eyes.
CONCLUSION
The cases like young male patient with acute onset of transient loose of vision, corneal epithelial defect associated with lid oedema redness of eyes at early morning suggesting to take history of any drugs to take at night.

REFERENCES
3. RX List the international drug index.

Source of Support: Nil. Conflict of Interest: None Declared.