HEALTH AND DRUG ALERTS

Visual loss with erectile dysfunction medications

Reason for posting: Phosphodiesterase type 5 (PDE5) inhibitors, including sildenafil (Viagra), tadalafil (Cialis) and vardenafil (Levitra), are drugs used to treat erectile dysfunction that have long been recognized to cause temporary, minor visual changes in less than 10% of users.[1] However concerns were raised in 2005 after a small case series was published describing several sildenafil users who experienced sudden, severe visual loss. Health Canada recently issued a warning that the condition known as nonarteritic ischemic optic neuropathy (NAION; see Box 1) has been reported in users of all the PDE5 inhibitors.[2]

The drugs: PDE5 inhibitors cause smooth-muscle relaxation in the cavernosal arteries, allowing penile vasodilation and erection in response to sexual stimuli. Sildenafil is also used in some patients with pulmonary hypertension because of the drug's vasodilatory properties. PDE5 inhibitors, particularly sildenafil, cause minor visual changes (e.g., increased perception of light, blurred vision and distorted blue–green colour perception) that are transient, dose-related and likely due to cross-inhibition of retinal PDE6. As of June 2006, Health Canada received 5 domestic reports of NAION associated with PDE5 inhibitor use, but dozens of cases have been reported internationally.

NAION occurs because blood flow to the optic nerve is disrupted. It is about 6 times more common than arteritic anterior ischemic optic neuropathy (AAION), a type of inflammatory arteritis.[3] NAION affects roughly 1 in 50 000 to 1 in 10 000 white people over the age of 50 every year (data are unavailable for other races).[3] The cause of NAOIN is unknown, and it is unclear why a vasodilator might cause such vascular damage. Animal models are lacking. Other medications associated with NAION include sumatriptan, amiodarone and nasal decongestants.[3]

Although clinical details are unavailable for many of the suspected cases, the majority of affected users of PDE5 inhibitors appear to have risk factors for NAION (Box 1), particularly atherosclerotic risk factors.[1] They are typically between the ages of 50 and 69, and although causality cannot be proven, visual symptoms typically develop within 6–36 hours after use of the drugs.[4]

What to do: Patients should be warned of this very rare but potentially serious and often irreversible adverse effect. Patients with many vascular risk factors (who may also be more likely to have erectile dysfunction) may be at greatest risk. It is not yet clear whether the background population rate of NAION is lower than that seen among PDE5 inhibitor users. The drugs should not be prescribed to people with previous NAION. If symptoms of NAION occur, use of the drug should be stopped and urgent ophthalmologic attention sought. Patients presenting with NAION should be questioned about any history of PDE5 inhibitor use.

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Box 1: Nonarteritic anterior ischemic optic neuropathy (NAION)[2,3]

Characteristics

- Sudden, acute onset, often on awakening
- Painless
- Rapidly progressive (partial or complete)
- Unilateral diminished visual acuity, visual field loss, relative afferent papillary defect or optic disc edema
- Sometimes irreversible

Risk factors

- Age > 50 yr
- Cardiovascular disease
- Cigarette smoking
- Diabetes mellitus
- Factor V Leiden mutation
- Hyperlipidemia
- Hypertension
- Intraocular surgery
- Previous NAION in opposite eye
- Small cup:disk ratio
- Sleep apnea

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