persistently increased standardised mortality ratio may indicate continuing sequelae of the fracture or that people fracturing their neck of femur are more frail and ill than the general population of similar age.

Measures of prognosis after fracture and comparisons between hospitals are substantially affected by whether death registration data are included, whether time intervals are extended beyond 30 days, and whether deaths that are not certified as fractured femur are included. When death registration data are available, one option is to confine analyses of mortality to the deaths attributed by the certifying clinician to the fracture. Our study confirms, however, that the fracture is often not recorded on death certificates even when death occurs soon after fracture.[5] Studies of mortality after fractured femur will be misleading unless they include deaths after discharge from the initial admission and consider all causes of death.

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Drug points

Tonic-clonic seizures in patients taking sildenafil

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Sildenafil citrate (Viagra) is a specific phosphodiesterase type V inhibitor with a selective inhibitory effect on cyclic guanosine monophosphate (cGMP). Its enhancement of nitric oxide release leads to an increase in cGMP concentrations, which is responsible for its main clinical effect—relaxation of the smooth muscle in the corpus cavernosum. The increase in blood flow into the penis helps to alleviate problems of erectile dysfunction.[1]

Minor side effects—such as headache, flushing, nasal congestion, and defects in colour vision—and serious cardiovascular and cerebrovascular effects, have been described.[1] Convulsive seizures have been an unknown neurological side effect until now. We report two cases of patients who first had a seizure soon after using sildenafil.

Case 1—A 63 year old man with a history of hypertension, but who was otherwise healthy, was admitted to hospital because of a first episode of generalised tonic-clonic seizures (GTCS). He had been prescribed sildenafil (50 mg) as required for sexual dysfunction. Three hours after taking sildenafil for the first time, he had a typical tonic-clonic seizure, as observed by his spouse. He was awake when he was admitted, and results of neurological examination, brain computed tomography, magnetic resonance imaging, and electroencephalography were normal. Electrocardiography, stress electrocardiography, echocardiography and cardiac scan with dipyridamole test, as well as carotid Doppler ultrasonography, showed no abnormalities. Two days later, he was discharged from the hospital with the recommendation that he stop using sildenafil. However, three months later, he decided on his own responsibility to try the drug again, and four hours later, had a tonic-clonic seizure. He was then prescribed carbamazepine (600 mg/day). He has been free of seizures for two years.

Case 2—An otherwise healthy 54 year old man was admitted to our department after having a first tonic-clonic seizure about 4.5 hours after he had taken sildenafil for the first time. His neurological examination, brain computed tomography, magnetic resonance imaging, and electroencephalography with sleep deprivation were normal.

Discussion

These men experienced epileptic seizures after taking sildenafil. It is highly unlikely that the seizures were caused by a cerebrovascular effect—that is, a previous existing neurological disease—or a cardiac event because medical tests ruled out this possibility, and in both cases the seizures occurred after the physical effort associated with coital activities had ended. Using sildenafil and having seizures seem to be directly related.

These two cases raise two important issues. Firstly, doctors must consider the possibility of epileptic seizures occurring in patients taking sildenafil. Secondly, more research is needed to test two conflicting theories—that is, whether nitric oxide induces epilepsy or protects against it.

Four cases of patients experiencing epileptic seizures during the clinical trials of sildenafil were reported to Pfizer, the manufacturer of the drug. However, a good correlation between the seizures and the effects of the drug was not found.

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Endpiece

A gloomy thought

Bodily decay is gloomy in prospect, but of all human contemplations the most abhorrent is body without mind.

Thomas Jefferson (1743-1826) in a letter to John Adams, 1 August 1816.

In *Familiar Medical Quotations*, ed Maurice B Strauss, Little, Brown and Company, Boston, 1968

Submitted by Fred Charatan, retired geriatric physician, Florida