CASE REPORT

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Transforaminal Epidural Injection Induces Hypertensive Crisis in a Patient whose Nifedipine was Withdrawn

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Hundreds of thousands of patients undergo interventional pain management procedures annually including transforaminal spinal epidural injections. The majority of these patients are ≥50 years of age and have a history of hypertension. The procedure requires that the patient remains alert and oriented throughout in order to monitor the pain relief pattern and the patient's response. In this setting special considerations should be applied to achieve proper pre- and perioperative blood pressure control.

1. Case Report

A 54-year-old obese Hispanic female, with a past medical history of hypertension controlled by nifedipine 30mg daily, with low back pain was referred for right spinal L4/L5 level transforaminal epidural injection for low back pain relief.

The patient had previously undergone a left L4/L5 level transforaminal epidural injection while receiving nifedipine without complications. The patient did not have any other significant past medical history, including cardiac and pulmonary problems.

The patient had been erroneously instructed by the nursing staff to discontinue nifedipine on the day before the injection procedure, which the patient did. On the day of the procedure the patient was asymptomatic. She travelled from a distance and arrived at the hospital 5 hours before the scheduled procedure time.

Since transforaminal epidural injections require that the patient remains alert and oriented during the procedure in order to monitor patient response, she did not receive any sedation or analgesia before the procedure. The long waiting time as well as preparations for the injection in the operating room resulted in significant agitation in the patient, and she reported having a headache immediately after the procedure started. At that point the patient had a blood pressure of 210/112mm Hg, which subsequently increased over 10 minutes to 224/116mm Hg, and a pulse of 110 beats/minute (i.e. sinus tachycardia), a respiratory rate of 18 breaths/minute and haemoglobin saturation of 97%.

The procedure was stopped and the patient's blood pressure was partially controlled over several hours by orally administered clonidine until nifedipine had been restarted and absorbed.

2. Discussion

Nifedipine has been shown to cause upregulation of functionally active cardiac calcium channels after administration, which offers a possible explanation for a 'withdrawal effect' after discontinuation of treatment with this drug.[1]

A recent study that compared nifedipine with amlodipine showed that although amlodipine was found to be more effective, no differences in safety parameters were observed, and neither drug caused any serious or severe treatment-related adverse

events. Amlodipine provided greater protection than nifedipine gastrointestinal therapeutic system (GITS) against loss of blood pressure control following missed doses.[2]

Nifedipine has been found to be an effective and well tolerated antihypertensive for essential hypertension, although it is not considered to be the drug of choice for this condition.[3] Nifedipine has been reported to cause mild adverse effects such as dizziness, flushing and headache (more frequent with the immediate-release formulation [incidence of 23–27%]) constipation and nausea (11%), and heartburn (11%).

Our patient had been taking nifedipine for more than 3 years without significant adverse effects. In our case, the combination of anxiety, 'white coat' hypertension and nifedipine withdrawal caused a severe hypertensive crisis. Our case is also supported by the work of Bursztyn et al., who reported a hypertensive crisis of 300/200mm Hg with abrupt nipedepine cessation.[4]

Awareness by the practitioner of nifedipine withdrawal is strongly advocated, particularly for procedures that require minimal sedation and cause significant patient anxiety such as spinal transforaminal epidural injections. There is no medical justification for stopping the medication prior to the procedure.

References

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