Postpartum seizure following administration of ergometrine for management of postpartum haemorrhage

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BACKGROUND

Ergometrine is an ergot alkaloid, administered for the management of uterine atony in postpartum haemorrhage. In part, this action is mediated via alpha adrenergic receptors, causing peripheral vasoconstriction with the potential for hypertension and cerebral vasoconstriction.

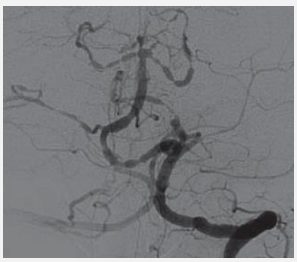

Figure 1. Beading on basilar artery and bilateral posterior cerebral arteries.

CASE

A 36-year-old multiparous woman was induced for ruptured membranes at 40 weeks gestation. Her medical and obstetric history were unremarkable. She had one isolated blood pressure reading of 132/90 mmHg intrapartum, however pre-eclamptic workup was normal, with no proteinuria.

An emergency caesarean section under spinal anaesthesia was performed due to fetal malposition. This was complicated by hypotension requiring a metaraminol infusion; and a 1.5 L postpartum haemorrhage secondary to uterine atony, managed with an oxytocin infusion and 250 micrograms of intramuscular ergometrine. The metaraminol infusion was subsequently ceased with a blood pressure of 122/87 mmHg. Within 45 minutes of the ergometrine, she developed transient severe hypertension of 172/113 mmHg, thunderclap headache, bilateral loss of vision of the entire visual field, acute confusion, aphasia and had a generalised tonic-clonic seizure. She was managed with magnesium sulphate infusion, sedated, intubated and admitted to the ICU.

Postpartum she remained normotensive and had a relative mildly elevated creatinine to 79 umol/L. Findings on a CT angiogram were consistent with possible posterior cerebral vasospasm, with beading of the right P1 and left P1 segments of the posterior cerebral artery. She was extubated within 24 hours, remained normotensive and her symptoms completely resolved within 16 hours.

DISCUSSION

Postpartum cerebral angiopathy (PPA) is a rare condition of unknown aetiology belonging to the family of Reversible Cerebral Vasoconstriction Syndromes (RCVS). It is clinically characterised by thunderclap headache and reversible angiographic narrowing of cerebral arteries and may also be associated with focal neurological features, normal or raised blood pressure and generalised seizures.[1-2] Several clinical and radiological features of PPA overlap with those of eclampsia, which not only causes difficulty in estimating incidence of PPA but has also lead to some postulation that the two represent different variations of a shared pathophysiological process.[3]

The ergot derivatives have complex pharmacological mechanisms which ultimately result in appreciable vasoconstrictive properties. Due to this, ergot alkaloids have been implicated as the possible precipitant of acute hypertension, stroke as well as PPA and other cases of RCVS, and eclampsia. [4-5]

Based on the temporal relationship between ergometrine administration and headache, the findings of cerebral vasoconstriction and the known vasoconstrictive properties of ergometrine, we suggest that ergometrine precipitated the patient's symptoms. It is unclear whether this patient had eclampsia or an isolated cerebral vasospasm response to the ergometrine. Though rare, PPA should be considered as an important differential to postpartum headache and seizure.

REFERENCES

1. Singhal AB, Bernstein RA. Postpartum angiopathy and other cerebral vasoconstriction syndromes. Neurocritical Care. 2005;3(1):91-7.
2. Ducros A. Reversible cerebral vasoconstriction syndrome. The Lancet Neurology. 2012;11(10):906-17.
3. Singhal AB. Postpartum angiopathy with reversible posterior leukoencephalopathy. Archives of neurology. 2004;61(3):411-6.
4. Ng SY, Ithnin E, Sia ATH, Ng CCM. Ergometrine administration for post-partum haemorrhage in an undiagnosed pre-eclamptic. Anaesthesia and intensive care. 2008;36(1):113-5.
5. Skeik N, Porten BR, Kadkhodayan Y, McDonald W, Lahham F. Postpartum reversible cerebral vasoconstriction syndrome: review and analysis of the current data. Vascular Medicine. 2015;20(3):256-65.
6. Fugate JE, Wijdicks EFM, Parisi JE, Kallmes DF, Cloft HJ, Flemming KD, et al. Fulminant postpartum cerebral vasoconstriction syndrome. Archives of neurology. 2012;69(1):111-7.