The Perioperative Management of a Patient with Recent PRES Syndrome

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Introduction

Posterior reversible encephalopathy syndrome (PRES) is a clinical and radiological diagnosis with a spectrum of clinical presentations. PRES induced by Gonadotrophin Releasing Hormones (GnRH) agonists has only been reported in the far east[1,2], suggesting that it may be more likely to occur in patients of Oriental-Asian ethnicity. There are no case reports describing the management of PRES in the peri-operative period. Surgical and anaesthetic management can be in direct contradiction to the neuroprotective measures required for PRES management. A multi-disciplinary team approach was undertaken in this instance in order to plan peri-operative care in the context of recent PRES diagnosis.

Case

Preceding history

- 41-year-old female of Vietnamese-Chinese ethnicity was listed for robotic myomectomy for severe symptomatic anaemia
- She received the GnRH agonist Leuprorelin in preparation for surgery

Initial presentation of PRES

- 1 month after the first administration of Leuprorelin, she presented with three generalised tonic-clonic seizures:
  - Prodrome of intermittent frontal headaches followed by vomiting
  - GCS of 13 on admission which improved over 24 hours
  - Neurological and ophthalmological examination were normal
- Investigations:
  - Initial MRI brain demonstrated altered signal intensity bilaterally in the parietal and occipital lobes and unilaterally in the thalamus and basal ganglia, with occipital cortical haemorrhages
  - Lumbar puncture demonstrated a high opening pressure with no evidence to support subarachnoid haemorrhage
- Clinical and radiological findings compatible with PRES and secondary to Leuprorelin. Serial MRI imaging demonstrated significant improvement. She commenced Levetiracetam which was up titrated.

Preparation for surgery

The patient was reviewed in high-risk anaesthesia clinic. The decision to continue with surgery was undertaken after discussion with both Neurology and the patient, with critical care back up.

Peri-operative management

Robotic myomectomy was performed under general anaesthesia in the Lloyd-Davies position, maintaining an angle of less than 5 degrees of head down throughout the procedure.

General anaesthesia:

- Induction: Remifentanil target-controlled infusion (TCI), Propofol bolus and Rocuronium
- Maintenance: Sevoflurane, Remifentanil TCI and Atracurium infusion.
- Simple analgesics and morphine were administered for analgesia peri-operatively.

No complications in the intra- or post-operative period and the patient was admitted to the ward.

Discussion

There have been case reports of PRES secondary to a GnRH agonist. This medication may be prescribed as a temporising measure prior to definitive surgical management, but the rare side effect of PRES carries its own complications and there are additional considerations in the decision to proceed with surgery.

The management of this case required a multi-disciplinary team approach including comprehensive discussion with the patient. It required balancing the benefits of surgery to treat the primary diagnosis versus the potential risks of surgery and general anaesthesia in the context of recent PRES.

Conclusion

This case demonstrates the additional considerations for peri-operative management in the context of recent PRES diagnosis and the importance of multi-disciplinary team planning.

Acknowledgements

Written consent was obtained from the patient for presentation of this case.

References

1. Lee, Chae. (2016). A Case of Leuprolide-Induced Posterior Reversible Encephalopathy Syndrome. *Journal of Neurocritical Care,* 9(2), 174-177.

2. Lee, Minhee. (2019). Posterior reversible encephalopathy syndrome in a woman who used gonadotropin-releasing hormone agonists: a case report. *Obstetrics & Gynaecology Science,* 62(1), 69-72.