Spinal Anaesthesia in the Obstetric Patient with Brugada Syndrome: A Report of Two Cases.

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Background

Brugada Syndrome is a genetic disorder that may cause syncope or sudden death as a result of ventricular tachycardia or ventricular fibrillation in patients with a structurally normal heart. The disorder results in a loss of function of cardiac sodium channels. Local anaesthetics interact with sodium channels and therefore they are relatively contraindicated in patients with Brugada syndrome. (1)

Two Cases

Case 1

A 37 yrs old woman was referred for delivery. After a sudden collapse one year earlier, she was diagnosed with Brugada syndrome and had an ICD implanted. Labour was induced at a gestational age of 41 weeks and after a few hours she asked for pain relief. A spinal catheter (G27 Quincke spinal needle, G22 catheter, catheter-over-needle system) was placed instead of an epidural catheter to reduce the amount of local anaesthetic. An initial dose of 5mg of ropivacaine was given and a continuous spinal infusion of ropivacaine 1.7mg/ml and sufentanil 0.8µg/ml was started at 2ml/hr. This resulted in an adequate analgesic level (T6). Only at 9cm dilatation an additional spinal dose of 1 ml of the mixture was administered. A total amount of 50mg of ropivacaine and 20µg of sufentanil was given throughout labour and delivery.

NIBP, ECG, pulse oxymetry and fetal cardiotocography were monitored. No adverse events or ECG changes were seen.

The day after, she complained of PDPH. She refused a blood patch, but the symptoms persisted and a blood patch was given on day 4 post partum.

Case 2

A 37 yrs old woman was referred for a curettage after an induced abortion at a gestational age of 8 weeks.

She didn't have any symptoms, but an ajmaline provocation test was performed because of a positive family history. The test was positive for Brugada syndrome.

The curettage was performed under spinal anaesthesia. A single shot of 50mg of hyperbaric prilocaine was injected into the subarachnoid space. An adequate analgesia was achieved on the right (T6), but not on the left (L2). Rescue analgesia was needed and 750 µg alfentanil was given intravenously during surgery.

NIBP, ECG and pulse oxymetry was monitored. No adverse events or ECG changes were seen.

Discussion

Local anaesthetics can interact with the already defective sodium channels of the heart, resulting in malignant arrhythmias.

It is recommended to avoid large doses of local anaesthetics and to use short-acting products. Spinal anaesthesia reduces the amount of local anaesthetic needed and systemic resorption is negligible. For these reasons it is preferred to epidural anaesthesia in patients with Brugada syndrome. Continuous spinal anaesthesia is a technique with a lot of advantages (fast, minimal drug exposure, less motor block, versatile), but with a high risk of PDPH. (2)

Long-acting drugs should be avoided, especially bupivacaine (high arrhythmogenic potential). Procaine and chlorprocaine have a structural resemblance to procainamide (Vaughan Williams class Ia). For that reason we didn't use them, although they have the shortest half-times of the commonly used local anaesthetics.

We report two cases with confirmed Brugada syndrome, that underwent spinal anaesthesia with short-acting drugs. No ECG changes were seen.

References

1. Sorajja D, Ramakrishna H, Poterack Ak, Shen WK, Mookadam F. Brugada syndrome and its relevance in the perioperative period. Ann Card Anaesth 2015; 18:403-413.
2. Palmer CM. Continuous Spinal anesthesia and analgesia in obstetrics. IARS, 2010; 111: 1476-1479.