CERVICAL EPIDURAL BLOCK FOR EMERGENCY HAND SURGERY IN A PATIENT WITH UNTREATED SEVERE HYPOTHYROIDISM

Srinivas Mantha, MD, Nirmala Jonahvitha, MD, Rahamathul Ammad, MD
Dept. of Anesthesiology, Nizam’s Institute of Medical Sciences, Hyderabad, India

Introduction:
Perioperative management of a patient with untreated severe hypothyroidism is mandatory to avoid hypothyroid crisis and to prevent or to treat a sensitive indicator of hypothyroid state. Perioperative problems are related to administration of anesthetic drugs, which are often coupled with increased sensitivity and duration of anesthetic drugs.

Challenging case report:
A male patient aged 43 years presented to the emergency department with crush injury of right hand. He was a known case of hypothyroid for the past six years on oral medication. Routine laboratory investigations were normal. ECG showed right bundle branch block with inverted T waves in lead II, III, and all chest leads. TSH level was 37.5 µIU/mL (normal range 0.3-5.0). Thyroid profile revealed the following values: 0.35 µg/dL (range 0.80 to 1.78) of T4, 0.42 µg/dL (range 6.0 to 12.1) and 9.14 µg/dL (range 3.4 to 6.0) of TSH. Oral thyroid replacement therapy was started with levothyroxine 0.125 mg daily. Emergency surgical debridement followed by groin flap was planned. While patient was in sitting position cephalic epidural anesthesia (CEA) block with 18 G Tuohy needle was performed at C7-T1 level. Epidural catheter was advanced 4 cm cephalad. Patient was placed back in the supine position and 5 ml of 0.3% bupivacaine was administered in a graded manner over 10 minutes. A segmental block of C4 to T3 was achieved. Infusion of 0.375% of bupivacaine at the rate of 3 ml per hour was given to facilitate surgery that lasted for 150 minutes. At the end of surgery, groin flap cover surgery was performed. The catheter was removed and patient was shifted to the recovery room. Two days later patient was posted for groin flap surgery. CEA was activated with 5 ml of 0.35% bupivacaine followed by infusion of 0.35% of bupivacaine at the rate of 3 ml per hour. Spinal subarachnoid block was administered initially with 3 ml of 0.35% bupivacaine heavy at L3-L4 interspace. Surgery lasted for 135 minutes. Postoperative pain was managed with non-steroidal anti-inflammatory drugs on both the occasions.

Results:
Patient had an uneventful postoperative course. Oral thyroid replacement therapy was continued for another 8th postoperative day. On the day of discharge his thyroid profile was as follows: 0.49 µg/dL of T4, 4.70 µg/dL of T3 and 7.27 µL/L of TSH.

Discussion:
The rationale of choosing regional anesthesia technique over general is obvious. A known case of hypothyroid state has to be managed in a sensitive indicator of hypothyroid state. The patient was a known case of hypothyroid state. The patient was discharged on day 0 of the postoperative period with an active control over thyroid replacement therapy. On the day of patient discharge, the repeat thyroid profile was as follows:
- T4: 0.40 µg/dL (normal range 0.8 to 1.78)
- T3: 4.70 µg/dL (normal range 0.9 to 2.20)
- TSH: 7.27 µL/L (normal range 0.34 to 5.6)

Patient was referred to an endocrinologist for further management of thyroid problem. Two weeks later, groin flap was debrided under local anesthesia.

Discussion:
Perioperative problems associated with untreated hypothyroidism are numerous and essentially include sensitive muscle cramps, poor peripheral tissue perfusion, prolonged sedation with standard doses of anesthetics, increased sensitivity to drugs and cardiovascular instability are the essential reasons [1].

Challenging case report:
A male patient aged 43 years presented to the emergency department with crush injury of right hand. He was a known case of hypothyroid for the past six years on oral medication. Clinical findings were unremarkable except for puffy skin over face and extremities. Routine investigations were normal. ECG showed right bundle branch block with inverted T waves in lead II, III and all chest leads. Two dimensional echocardiography revealed normal study. Thyroid profile (by automated chemiluminescence immunoassay CLIA methods) revealed the following values:
- T3: 0.35 µg/dL (normal range 0.8 to 1.78)
- T4: 0.42 µg/dL (normal range 0.9 to 2.20)

Oral thyroid replacement therapy was commenced with 0.125 mg daily. Emergency surgical debridement followed by groin flap was performed. The catheter was removed and patient was shifted to the recovery room. Two days later patient was posted for groin flap surgery. CEA was activated with 5 ml of 0.35% bupivacaine followed by infusion of 0.35% of bupivacaine at the rate of 3 ml per hour. Spinal subarachnoid block was administered initially with 3 ml of 0.35% bupivacaine heavy at L3-L4 interspace. Surgery lasted for 135 minutes. Postoperative pain was managed with non-steroidal anti-inflammatory drugs on both the occasions.

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Provided the anesthetic indication for elective neck surgery for compression or lymph node excision.

References: