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Case Report

Tur Syndrome Developing Under Spinal Anesthesia

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Introduction

Transurethral Prostate Resection (TUR) opens large venous network and allows irrigation fluid to be absorbed into systemic circulation. The absorption of 2000 ml or more fluid causes a syndrome known as TUR-P syndrome and presents with head ache, restlessness, confusion, cyanosis, dyspnea, arrhythmia, hypotension and convulsions [1]. The most important point in treatment is early diagnosis. When suspected, serum sodium levels of the patients should be measured. In cases with large prostate whose operation is estimated to last long, perioperative sodium measurement should be made routinely. Compared to general anesthesia, regional anesthesia decreases the incidence of postoperative venous thrombosis and the probability of symptoms being masked [2]. Regional anesthesia enables earlier recognition and faster and more efficient treatment of TUR syndrome.

Case

TUR-P operation was planned in a patient without any known disease and diagnosed with Benign Prostate Hypertrophy (BPH) and bilateral hydronephrosis. A 63 years old, ASA 1 (American Society of Anesthesiologists) patient under spinal anesthesia was presented whose preoperative laboratory findings of the were normal. During the operation (fifteen minutes to two hours), 2000 ml crystalloid and 1000 ml colloid resuscitation was made. Perioperatively, surgical team used 13 units of 3000 ml 5% mannitol irrigation fluid (39000 ml). At 105th minute of operation, agitation, cyanosis, wheezing, tremor, tachycardia, hypertension and then hypotension developed. In blood gases obtained simultaneously, Na was found to be 101 mEq/l, K: 3.3 mEq/l, pH: 7,14, pO2: 93 mmHg, pCO2: 73 mmHg, HCO3: 19 mmol/l, BE: -5.7 and Hgb: 10 gr/dl. In view of these results, TUR-P syndrome was considered and diuretics were administered. Surgical team was warned and operation was terminated. As there was no place in postoperative intensive care, the patients were transferred to recovery unit. The patient's consciousness was open but he had agitations. Respiratory sounds were spasmodic and he had tachycardia. On that Na was 101 mEq/l and 3% saline was infused at the rate of 100 ml/h. Upon the development of hypotension, dopamine infusion was instituted at the rate 5-10 mcg/kg/min. Eighty mg Methylprednisolon was administered and the patients was warmed since he was hypothermic. Low dose meperidin was administered for shivering. Two hours later, Na value was found 112 mEq/l in control, also dilutional thrombocytopenia was detected. The number of thrombocytes fell as low as 77000 and upon the administration of treatment, thrombocyte numbers returned to normal with the establishment of intravascular fluid balance.

Discussion

The probability of masking of TUR-P syndrome or bladder perforation symptoms is lower with regional anesthesia. In patients who are awake, the evaluation of mental status may catch the first symptoms of TUR-P syndrome and bladder perforation [3,4]. The symptoms of TUR-P syndrome depends on excessive fluid loading in circulation which is termed as water intoxication. The absorption of two liter or more fluid leads to symptoms termed as TUR-P syndrome. This syndrome presents with headache, convulsion, confusion, disorientation, fear, cyanosis, coma, dyspnea, arrhythmia and seizures in intraoperative and postoperative periods. Hypertension or hypotension may also occur [2]. In addition, due to excessive fluid load, pulmonary edema may develop in patients with weak left ventricular functions. In our patient, hypertension, blurred consciousness, tremor, disorientation, desaturation and tachycardia were found to be developed, which suggested TUR-P syndrome under the spinal anesthesia [5,6]. Factors increasing the risk of TUR-P syndrome are the size of opened venous sinus, large amount of irrigation fluid, the use of large amounts of hypotonic intravenous fluid (5% dextrose) and last but not the least the duration of resection. Especially a resection period longer than 60 minutes increases risk.

Surgeon should be asked to carry out bleeding control and finish resection rapidly. Blood sample should be sent for serum electrolytes; if symptoms start to appear with an acute change in serum sodium under 120 mEq/l, the condition is severe. If the cause is hypervolemia, hyponatremia may usually be corrected with fluid restriction and diuretics (Furosemid, 10-20 mg i.v. hyponatremia symptoms do not develop until. Serum Na concentration drops under 120 mEq/l. After TUR-P operations, serum sodium concentrations may drop under 125 mEq/l at a rate of 15%, of which 40% is associated with mortality [5]. In cases with sodium concentration over 120 mEq/l, in order to avoid circulatory loading, it is recommended that the rate of hypertonic saline solution infusion should not exceed 100 ml/second. When serum concentration is below 100 mEq/l, more aggressive treatment is administered so as to prevent intravascular hemolysis [1,4,5].

Conclusion

The most important aspect of the treatment of TUR-P syndrome is early diagnosis. Absorbed fluid should be eliminated first and hypoxemia and hypoperfusion should be prevented; loop diuretics may be used for the elimination of excess fluid. Regional anesthesia methods make it possible to recognize TUR-P syndrome early and to treat it rapidly and efficiently. In this patient, the administration of spinal anesthesia, early diagnosis, and initiation of judicious treatment without wasting time after surgery prevented the condition from progressing to death.

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