Persistent intraoperative hypotension as a symptom of accidental hypoglycemia

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Introduction

We report an example of intraoperative hypoglycemia found in heart failure symptoms during general anesthesia.

Case Report

- 79-year-old female patient (Height: 160cm Weight: 39kg) with diabetes type2
- Admitted for supracondylar humerus fracture surgery
- Laboratory data : HbA_{1c} 6.6%, BS 276 mg/dl, Hb9.4 g/dl
- Medication: Sitagliptin 50 mg

Before Surgery

- Hyperglycemia of blood glucose 410 mg/dl
- Using the sliding scale, 8 units of insulin was administered, and before surgery the blood glucose was 120 mg/dl
- Vital signs before introduction: Blood pressure 105/65 mmHg, Heart rate 85 /min, No arrhythmia

Induction and Maintenance

Anesthesia was introduced and intubated with propofol, rocuronium and maintenance of anesthesia was continued by administration of remifentanyl and oxygen-air-sevoflurane.

During the operation

Immediately after intubation, the systolic blood pressure was 120 mmHg, but gradually decreased to the 70 mmHg level.

Response to intermittent administration of ephedrine 4 mg was poor.

Ventricular extrasystole emerges.

Reduction in circulating blood volume was considered.

500 ml of hydroxyethyl starch was administered, but the blood pressure did not rise.

Next, we considered the existence of chronic heart failure before surgery.

Continuous administration of dopamine was started from 1 µg /kg/min but the hypotension did not improve, and the arrhythmia became a multi-source ventricular extrasystole

As a result of measuring blood glucose, blood glucose 30 mg/dl 40ml of 50% glucose was intravenously administered.

Blood glucose immediately after glucose intravenous administration was 153 mg/dl

Blood pressure gradually increased after glucose administration, rose to about 100 mmHg. And then, extrasystole disappeared

Postoperative course was no problem, discharge from the 7th sick day

Discussion

Immediately after the administration of glucose, the patient's blood pressure increased and arrhythmia disappeared. The patient's hypotension and arrhythmia were thought to be symptoms of heart failure caused by hypoglycemia.

During the anesthesia, it is difficult to detect neurological symptoms caused by hypoglycemia.

Similar symptoms are caused by surgery or anesthesia, so it is difficult to detect hypoglycemia. We were able to identify hypoglycemia as the cause of the patient's heart failure symptoms.

Conclusion

It is important that hypoglycemia has the potential to cause hypotension and arrhythmia.

Reference

- Cryer PE, Davis SN, Shamon H. Hypoglycemia in diabetes. Diabetes Care. 2003;26:1902-12.
- Tsujimoto T, et al. Vital signs, QT prolongation, and newly diagnosed cardiovascular disease during severe hypoglycemia in type 1 and type 2 diabetic patients. Diabetes Care. 2014;37:217-25.