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Case Report

Idaricuzumab Treatment in Severe Gastrointestinal Bleeding and Renal Insufficiency Due to Dabigatran Overdose: Case Report

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Abstact

Currently, new generation oral anticoagulant drugs are frequently prescribed. Although routinely do not require coagulation test monitoring, new generation anticoagulants may cause overdose in patients with renal insufficiency. Bleeding due to dabigatran overdose may be life-threatening and should be treated immediately. In this article, treatment strategies of a patient with severe gastrointestinal bleeding and renal insufficiency due to dabigatran are discussed.

Keywords: dabigatran, gastrointestinal bleeding, idaricuzumab

Introduction

Until recently, Vitamin K antagonists such as warfarin have been used primarily in patients with atrial fibrillation to prevent thromboembolic complications [1]. However, the use of warfarin in atrial fibrillation has significant limitations such as the need for frequent coagulation tests and interaction with other drugs and foods [2,3]. New generations of anticoagulants (dabigatran, apixaban, rivaroxaban, edoxaban, betrixaban) are frequently used in daily practice and are claimed to be more effective and safe than vitamin K antagonists and they do not need monitoring with coagulation tests. Dabigatran is a direct inhibitor of thrombin and has proven to be more effective than warfarin in stroke and systemic embolism [4]. Idaricuzumab has been reported to be effective and safe inhibitor of dabigartan in two randomized clinical trials [5]. In this article, the use of idaricuzumab in the management of a patient with renal insufficiency and severe gastrointestinal bleeding probably due to dabigatran is discussed.

Case Report

An 86-year-old female patient who was admitted to the emergency department with signs of melena and fatigue within the last hour. She was treated with dabigatran. The vital signs of the patient at the time of admission to the clinic were as follows: temperature 36.6^{o}C, arterial blood pressure 108/70 mmHg, heart rate: 120/min and respiratory rate: 22/min. Fresh blood was detected on rectal examination. The rest of the physical examination was normal. Blood biochemistry and whole blood tests were as follows: glucose: 111 mg/dl, creatinine: 2.1 mg/dl, AST: 21 U/L, ALT: 12 U/L, Na: 136 mmol/L, K: 5.6 mmol/L, Cl: 109 mmol/ L, Ca: 7.4 mg/dl, WBC: 11.200 x 10^9 / L, Hb: 4.3 g/dl, PLT: 118 x 10^9 / L, INR: 4.7, APTT: 58, 7 sec, PT: 42.7 sec. The patient was transferred to the intensive care unit because of the instability in the general clinical situation. Mucosal bleeding points were detected in colonoscopy. Detailed medical history of the patient revealed the use of dabigatran due to non-valvular atrial fibrillation. Before the administration of dabigatran the patient was treated by warfarin that was discontinued because of gingival hemorrhage. Dabigatran was immediately discontinued and fresh frozen plasma and whole blood were given to the patient. However, the low hemoglobin levels and the unstable vital signs persisted after blood transfusion. At this stage, the patient received idaricuzumab at the dose of 5 grams as rapid intravenous infusion. The patient's active bleeding stopped two hours after the infusion of idaricuzumab whereas no further reduction of hemoglobin level was observed. The glomerular filtration rate of the patient increased to 38 ml/min/1.73 m^2 and then returned to the baseline values and the patient was transferred to the ward because of lack of evidence of active bleeding and stable clinical situation.

Discussion

Dabigatran is an oral anticoagulant acting via direct inhibition of thrombin that prevents strokes in patients with non-valvular atrial fibrillation. Before the administration of the new generation of anticoagulants, the renal and liver function tests should be carefully evaluated [4]. Dabigatran overdose can lead to life-threatening bleeding, especially in elderly patients. Idaricuzumab is a monoclonal antibody that specifically binds

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to dabigatran. In particular, it inhibits aDabiFab [6]. Idaricuzumab was approved by the FDA in 2016 and it is found in vials of 2.5 gram. Idaricuzumab can be given as intravenous infusion for 15 minutes or as fast intravenous injection of 2 vials [5].

Conclusions

Dabigatran has low affinity for plasma proteins and is considered to be dialyzable. Prior to administration of idaricuzumab overdose of dabigatran was treated by hemodialysis. Currently, hemodialysis and hemodiafiltration can be used in patients with dabigatran overdose who do not respond to idaricuzumab.

Conflict of interest statement. None declared.

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