CHAPTER 15

NEW GENERATION ANTICOAGULATION USAGE IN THORACIC SURGERY AND MANAGEMENT OF MAJOR HEMOPTYSIS

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INTRODUCTION:

Long-term oral anticoagulation for over fifty years is provided with warfarin, a vitamin K antagonist. According to the 2019 AHA/ACC/HRS Focused Update of the 2014 Guideline for Management of Patients with Atrial Fibrillation new generation oral anticoagulants are recommended over warfarin where eligible [1]. New generation anticoagulants include direct thrombin inhibitors such as dabigatran, argatroban, bivaluridine, desirudine and hirudin and direct factor Xa inhibitors like rivaroxaban, apixaban, edoxaban and betrixaban. New generation anticoagulants are popular in recent years as the main reason for their use is that they have a predictable pharmacokinetic and pharmacodynamic profile with a larger therapeutic window compared to vitamin K antagonists [2]. Hospitalization rate and laboratory testing requirements are also lower, as they require less clinical follow-up [3]. Moreover, their interaction with drugs and food is lower.

Patients with novel anticoagulats are frequently encountered in the clinic for noncardiac surgery. The main concern for both the anesthetist and the surgeon is arterial and/or venous thrombosis caused by the discontinuation of these drugs and the possible rebound hypercoagulability due to bleeding in the perioperative period. In addition, there is a risk of catastrophic complications related to hematoma development that may occur as paralysis in patients receiving anticoagulants [4].

APIXABAN:

In 2012, the Food and Drug Administration (FDA) approved the clinical use for stroke and thromboembolism prevention [5]. Apixaban is a reversible competitive inhibitor for Xa. It is frequently used in patients with atrial fibrillation. Postoperative hemorrhage after right upper lobectomy has been reported in relation to apixaban use [6]. There is currently no known reversing agent for apixaban. However, in the first 6 hours, activated charcoal coadministration has been shown to reduce the uptake and accelerate drug elimination [5]. Apixaban prolongs PT / INR and aPTT. This relationship has been shown to be dose-dependent. More laboratory effects are observed in increasing doses.

DABIGATRAN:

Dabigatran is the first novel oral anticoagulant approved by the FDA. It is the only oral direct thrombin inhibitor on the market. Similar to apixaban, it is used for stroke and acute venous thromboembolism prevention. This agent with parenteral form has a peak effect time of less than 2 hours. Half-life is 12-17 hours, metabolized by plasma esterases. It is not recommended in pa-

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be considered. Active oral charcoal, hemodialysis or 3 or 4-factor Prothrombin Complex Concentrates are used in the absence of specific revers agents.

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