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RATIONAL CHOICE OF ANTICOAGULANTS IN EMERGENCY MEDICINE

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The question of how to rationally select anticoagulants in an emergency department setting is highly complex. Factors influencing the choice of medication include both patient-related variables (such as the specific medical condition or surgical status) and characteristics of the anticoagulant itself (whether it acts directly or indirectly). Another critical consideration is the speed with which the anticoagulation effect can be reversed. Gastroparesis, ileus, continuous enteral feeding, and shock-induced splanchnic hypoperfusion drastically alter oral drug absorption. Consequently, parenteral anticoagulants are the agents of choice in the emergency department. On the other side uunfractionated Heparin (UFH) and Low-Molecular-Weight Heparin (LMWH) possess no intrinsic anticoagulant activity; they function as catalysts by accelerating antithrombin III (ATIII) activity. In view of this, monitoring of AT III levels should be performed. In hemodynamically unstable patients receiving high-dose vasopressors, absorption of subcutaneous LMWH can be highly erratic. Continuous intravenous (IV) UFH is often preferred for therapeutic anticoagulation because it bypasses the skin entirely. The use of IVUFH should be reserved for specific patient cohorts where the benefit of IV UFH outweighs the additional risks: patients with excessively high and excessively low body weight, severe renal failure. Another factor in favor of the short-term use of unfractionated heparin (UFH) in the emergency department is the well-established approach for reversing excessive hypocoagulation (using protamine sulfate).

Another issue in clinical pharmacology that remains not fully resolved is the prescription of anticoagulants to patients undergoing chronic hemodialysis (end-stage chronic kidney disease, CKD-5) who also have permanent atrial fibrillation (AF); this represents one of the most complex and controversial challenges. The fundamental dilemma is that dialysis patients face a critically elevated risk of both ischemic stroke and severe bleeding (due to uremic platelet dysfunction). For such patients Warfarin remains mandatory only in the presence of mechanical heart valve prostheses or moderate-to-severe mitral stenosis. Warfarin blocks the γ-carboxylation of matrix

Gla protein (MGP) – a potent inhibitor of vascular calcification. This sharply accelerates arterial calcification and can lead to the life-threatening condition known as calcific uremic arteriolopathy (calciphylaxis), as well as accelerate the deterioration of heart valves. In patients with AF undergoing hemodialysis who have a low to moderate thromboembolic risk (or an extremely high risk of bleeding), a strategy of completely avoiding oral anticoagulants (OACs) is justified.

Thus, the choice of anticoagulants in the emergency department should be individualized.

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