Research Article

Prevention of amoxicillin-induced post-extraction bleeding with tranexamic acid rinses in anticoagulated patients: A review literature

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ABSTRACT

Background: Patients on oral anticoagulant therapy for a chronic period of time have greater tendency of postoperative bleeding and these patients cannot discontinue their oral anticoagulant abruptly to undergo dentoalveolar surgery therefore special care is to be taken to treat these patients. Cardiologist opinion is a must for these patients for us to carry out the surgery, PT-INR, bleeding time and clotting time values are to be reassured. **Conclusion:** Meticulous attention should be paid to while prescribing antibiotic medications in anticoagulated patients that may affect metabolism of warfarin. Since tranexamic acid has antifibrinolytic property, it remains as the most preferred drug over decades to prevent as well as treat hyperfibrinolysis and therefore it reduces mortality.

KEY WORDS: Amoxicillin, Tranexamic acid rinse, Vitamin K

INTRODUCTION

When a vessel is ruptured, the prothrombin activators are formed, those, in turn, catalyzes the conversion of prothrombin to thrombin, the thrombin converts fibrinogen to fibrin that forms a mesh and traps the platelet, blood cells, and plasma to form the clot. Prothrombin (factor II), VII, IX, and X factors and various other factors are formed in the liver which are Vitamin-K dependent. Oral anticoagulants compete with the Vitamin-K reactive site and block its action and interfere with normal coagulation process.

Measuring prothrombin time (PT):

$$INR = \left\{ \frac{\text{Patient's PT}}{\text{Mean normal PT}} \right\} ISI$$

Where, INR – International normalized ratio
PT – Prothrombin time
ISI – International sensitivity index

The recommended INR level according to the American College of Chest Physicians is between 2.0 and 3.0 for most conditions.[1-4]

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DISCUSSION

Vitamin K is a fat-soluble vitamin and is ingested, absorbed from the normal diet synthesized in the colon by bacterial activity.[5,6]

Antibiotics bring about alteration in the coagulation effects of warfarin compounds. In cardiovascular patient, amoxicillin is given before surgery for prophylaxis to minimize the infection. These antibiotics taken in excess, then the required dose causes a decrease in intrinsic normal gut flora and leads to antibiotic-induced decreased production, uptake of Vitamin K, and, therefore, causes deficiency of Vitamin K. In such cases, it leads to bleeding caused by amoxicillin-induced Vitamin K deficiency. Tranexamic acid protocol is strictly followed and bleeding is controlled completely.

Tranexamic acid in its active transisomeric form is a potent antifibrinolytic agent. It blocks the lysine-binding site of plasminogen to fibrin, this inhibits the activation of plasminogen by plasminogen activator, it is absorbed to the fibrin, and the blood clot is stabilized. The onset of action of tranexamic acid is within few minutes , its bioavailability in serum is 7-8 hours and it has a half life of about 2 hours. It is being administered perorally or intravenously and is excreted into the urine. It enters tissues and fluids in various concentrations and crosses the placenta.[7,8,9]

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CONCLUSION

Cardiovascular patients remain as a challenging group, careful dosage of antibiotics prescribed to these patients; then, the routinely prescribed medication is required. Diligent attention should be paid to the concomitant use of any medications that may affect metabolism of warfarin. Since tranexamic acid has antifibrinolytic property, it remains as the most preferred drug over decades to prevent as well as treat hyperfibrinolysis; therefore, it also reduces mortality.

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