

College of Dentist Medicine - 3rd class - pharmacology lecture.

Drugs Used to Treat Bleeding

- Bleeding problems may have their origin in naturally occurring pathologic conditions, such as hemophilia, or as a result of fibrinolytic states that may arise after gastrointestinal surgery or prostatectomy.
- Use of anticoagulants also give rise to hemorrhage.(heparine,coumarine ,warfarin).
- Certain natural proteins and vitamin K, as well as synthetic antagonists, are effective in controlling this bleeding.
- For example, hemophilia is a consequence of a deficiency in plasma coagulation factors, most frequently Factors VIII and IX.
- Concentrated preparations of these factors are available from human donors.
- However, these preparations carry the risk of transferring viral infections.
- Blood transfusion is also an option for treating severe hemorrhage.

A. Aminocaproic acid and tranexamic acid

- Fibrinolytic states can be controlled by the administration of aminocaproic acid or tranexamic acid.
- Both agents are synthetic, inhibit plasminogen activation, are orally active, and are excreted in the urine.
- A potential side effect of treatment is intravascular thrombosis.
- Dentistry:- Tranexamic acid is used in dentistry in the form of a 5% mouth rinse after extractions or surgery in patients with prolonged bleeding time, e.g. from acquired or inherited disorders.

TRANEXAMIC ACID 5% MOUTHWASH

- This has been written to provide you with information on how to use tranexamic acid mouthwash after dental or oral surgery.
- Tranexamic acid mouthwash is given specifically to those people taking anticoagulant therapy.

WHY USE TRANEXAMIC ACID MOUTHWASH

- The treatment is to prevent bleeding after oral/dental surgery in patients who are taking anticoagulants.
- It is an effective alternative to reducing patients' anticoagulants before surgery, then increasing them afterwards.
- This treatment allows you to keep taking your normal dose of anticoagulant.
- Any bleeding in the mouth is controlled by tranexamic acid working directly on the bleeding area.

- It is very important that you follow these instructions and don't miss any doses.
- Use the mouthwash **four** times a day starting on the day of dental/oral surgery.
- Use the first dose 5-10 minutes before the extraction.
- Rinse your mouth with 5ml for **two minutes** each time.
- Try not to swallow any of the mouthwash.
- After you have used the mouthwash do not eat or drink for **one** hour.
- For 24 hours after your dental/oral surgery take a soft diet only.
- Try to space the use of the mouthwash out throughout the day (every 6 hours is ideal).
- If you miss a dose, use it as soon as you remember.
- If you don't remember until your next dose just use one dose (5ml) - there is no need to use twice as much.
- **If your wound starts to bleed, press on it with gauze.**
- **If it does not stop bleeding after 20 minutes, contact the dentist/hospital where you had the surgery.**
- Continue to use the mouthwash for 5 days after dental/oral surgery.
- If your wound is still bleeding after 5 days contact the dentist/hospital where you had surgery.

B. Protamine sulfate

- Protamine sulfate antagonizes the anticoagulant effects of heparin.
- This protein is high in arginine content, which explains its basicity.
- The positively charged protamine interacts with the negatively charged heparin, forming a stable complex without anticoagulant activity.
- Adverse effects of drug administration include hypersensitivity as well as dyspnea, flushing, bradycardia, and hypotension when rapidly injected.

C. Vitamin K

- vitamin K₁ (phytonadione) administration can interfere with bleeding problems due to the oral anticoagulants is not surprising, because those substances act by interfering with the action of the vitamin .
- The response to vitamin K is slow, requiring about 24 hours (time to synthesize new coagulation factors).
- Thus, if immediate hemostasis is required, fresh-frozen plasma should be infused.

D. Aprotinin

- Aprotinin is a serine protease inhibitor that stops bleeding by blocking plasmin.
- It can inhibit streptokinase.

- It is approved for prophylactic use to reduce perioperative blood loss and the need for blood transfusion in patients undergoing cardiopulmonary bypass surgery.
- Aprotinin may cause renal dysfunction and hypersensitivity (anaphylactic) reactions.
- In addition, aprotinin should not be administered to patients who have already been exposed to the drug within the previous 12 months due to the possibility of anaphylactic reactions.