

# THE ROLE OF TRANEXAMIC ACID IN CONTEMPORARY MEDICINE

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To the Editor,  
we read the article “Tranexamic acid use in emergency medicine” by Al-Jeabory et al. [1] with great interest. The article highlights the possibility of using tranexamic acid (TXA) in relation to patients in a life-threatening situation as an intriguing approach. Tranexamic acid has been demonstrated to minimize the risk of death from cardiac arrest and stroke in trauma patients.

Tranexamic acid is a synthetic lysine derivative that operates by slowing the disintegration of blood clots. This restriction of plasmin activity increases the stability of blood clots, resulting in less bleeding and blood loss. Tranexamic acid also has an immediate effect on clot formation by increasing the activity of coagulation factors including factor IX and factor X. This increases clot stability and decreases bleeding [2]. Tranexamic acid also has a second method of action, which is to prevent the activation of clotting factors by binding to the clotting enzyme, factor Xa. This binding inhibits the synthesis of thrombin, a clotting factor required for the formation of clots. Tranexamic acid is a safe medication that may be given in emergency conditions. As a result, tranexamic acid is an important tool in emergency medicine and should be explored for the treatment of a wide range of illnesses [3].

To begin, tranexamic acid is most typically used in trauma to stop bleeding in patients with major injuries such as penetrating injuries, head traumas, or fractures. It has been demonstrated to lower the risk

of mortality from bleeding in trauma patients [4, 5]. The CRASH-2 experiment, a large, randomized, controlled trial that included approximately 20,000 trauma patients from hospitals in 40 countries, was one of the most significant investigations on tranexamic acid in trauma [6]. When administered within 3 hours of injury, tranexamic acid lowered the chance of mortality due to bleeding by nearly one-third, according to the study. The researchers also discovered that tranexamic acid had no notable side effects. Tranexamic acid has established a standard of therapy in many trauma centers since the CRASH-2 experiment.

Second, TXA is used to minimize bleeding and the requirement for blood transfusions during surgical procedures. TXA, for example, is commonly delivered intravenously or topical and is frequently provided immediately before or during surgery [7, 8].

TXA is also used to treat menorrhagia, or excessive menstrual bleeding [9]. It works by decreasing the disintegration of blood clots, hence reducing severe bleeding. It is frequently used as an alternative to hormone therapy or surgery in women with severe menstrual bleeding who do not want to utilize hormonal therapy or are not surgical candidates.

When tranexamic acid is administered intravenously, it works quickly, reaching peak plasma levels in 5–10 minutes, allowing for rapid bleeding control. Its effects can persist for many hours, depending on the dosage and the physiology of the particular patient [10].

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Finally, tranexamic acid is a medicine that works by decreasing blood clot disintegration and boosting clot stability. It does so via binding to plasminogen, which inhibits plasmin activity, and by binding to factor Xa, which inhibits thrombin production. This reduces bleeding and blood loss, making it a useful tool in emergency care for treating traumatic injuries, surgical operations, and excessive menstrual bleeding. However, it is worth emphasizing that Tranexamic acid should not be used in patients with a history of stroke or blood clots, as it may increase the risk of these conditions.

### Conflict of interest

All authors declare no conflict of interest.

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