

Tranexamic acid—a recipe for saving lives in traumatic bleeding

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The Cochrane Injuries Group requested that all medical editors who are members of WAME (the World Association of Medical Editors) publish this short editorial to help doctors around the world know that tranexamic acid significantly reduces death due to traumatic bleeding. While it relates to hospitalised patients, it also applies within primary care because the benefits are only gained if it is given within three to four hours of injury.

Using kitchen scales, carefully weigh out 4 kg of rice and pour it into a deep saucepan. Now put your hands into the rice and let the grains run between your fingers. Contemplate carefully each grain. The number of grains (about 140 000) is approximately the number of lives that could be saved each year worldwide if all hospitalised trauma patients with significant bleeding were treated with tranexamic acid (TXA) within three hours of injury. TXA is cheap and widely available. All that is needed to reap these human benefits is that doctors use it.

That TXA is a potent inhibitor of fibrinolysis was first reported in September 1962.¹ Since then TXA has been widely used to treat heavy menstrual bleeding and to reduce blood loss in elective surgery where it reduces blood transfusion by about one-third.² The CRASH-2 collaborators hypothesised that TXA might also reduce bleeding in trauma patients. The CRASH-2 trial was a UK government-funded randomised trial of the effects of the early administration of TXA on death, vascular occlusive events and blood transfusion in bleeding trauma patients.

A total of 20 211 adults with significant traumatic bleeding were randomised to receive TXA or matching placebo, with 99.6% follow-up. The risk of death due to bleeding was significantly reduced with TXA. If TXA is given within three hours of injury, it reduces the risk of bleeding

to death by nearly one-third (relative risk = 0.72 [95% CI 0.63–0.83], $p < 0.001$). All cause mortality was also significantly reduced.^{3,4} The large numbers of patients studied in a wide range of different health care settings help these results to be generalised widely. On the basis of the results of the CRASH-2 trial, TXA has been included in the WHO list of essential medicines.⁵ Giving TXA to bleeding trauma patients within three hours of the injury could save over 100 000 lives per year worldwide. Giving TXA to bleeding trauma patients is highly cost-effective in high, middle and low income countries.⁶ It is essential that all doctors who treat trauma patients are aware of the results of the CRASH-2 trial.

TXA should be given to all adults with significant haemorrhage (SBP <90, HR >110) or those considered by the clinician to be at risk for significant haemorrhage. Because the effect of TXA on death due to bleeding depends importantly on the time interval between the injury and the onset of treatment, it should be given as early as possible and within three or four hours of the injury as it is unlikely to be effective if given later than this.

References

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