

Would routine use of tranexamic acid for PPH be cost-effective in the United States?

Yes. A decision-tree analysis incorporated US-specific hemorrhage-related cost and probability data with tranexamic acid (TXA) outcome data from the international WOMAN trial. The study results indicate that routine use of TXA for postpartum hemorrhage (PPH) in the United States would be cost saving from both the health system and societal perspectives, particularly when TXA is administered within 3 hours of delivery.

Sudhof LS, Shainker SA, Einerson BD. Tranexamic acid in the routine treatment of postpartum hemorrhage in the United States: a cost-effectiveness analysis. Am J Obstet Gynecol. Published online June 18, 2019. doi.org/10.1016/j.ajog.2019.06.030.

EXPERT COMMENTARY

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Postpartum hemorrhage is a leading cause of morbidity and mortality in the United States. The World Maternal Antifibrinolytic (WOMAN) trial showed that the use of TXA, an antifibrinolytic agent, for PPH decreases hemorrhage-related mortality and laparotomy. Routine use of TXA for PPH has demonstrated cost-effectiveness in

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low-resource countries, where hemorrhage-related mortality rates are higher than in the United States. This study aimed to determine if routine use of TXA for PPH in the United States also is cost-effective.

Details of the study

Sudhof and colleagues conducted a decision-tree analysis to compare the cost-effectiveness of 3 strategies regarding routine use of TXA for PPH in the United States: no TXA, TXA given at any time, and TXA given within 3 hours of delivery.

Health care system perspective. In the primary analysis, the 3 strategies were evaluated from the perspective of the health care system. Outcomes included cost, number of laparotomies, and maternal deaths from delivery until 6 weeks postpartum. Rates of hemorrhage and related complications, as well as cost assumptions, were derived from multiple US-based studies. The relative risk reduction in death and laparotomy with TXA in the United States was assumed to be similar to that found in the WOMAN trial (19% and 36%, respectively).

FAST TRACK

Three strategies for PPH were analyzed for cost-effectiveness in the United States: no TXA, TXA given at any time, and TXA given within 3 hours of delivery

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WHAT THIS EVIDENCE MEANS FOR PRACTICE

Routine use of TXA for PPH, particularly within 3 hours of delivery, is likely cost-effective in the United States. Consideration should be given to including TXA in institutional hemorrhage protocols.

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Societal perspective. In the secondary analysis, the 3 TXA strategies were evaluated from the societal perspective, comparing quality-adjusted life-years (QALYs) and cost per QALY. For both the primary and secondary analyses, sensitivity analyses were performed across a range of values for each input.

Main findings. Tranexamic acid use would be cost saving if the relative risk reduction for maternal death with TXA was greater than approximately 5%, which is significantly lower than that seen in the WOMAN trial (19%). The primary analysis demonstrated that—assuming a 3% rate of PPH—giving TXA to women with PPH would save \$11.3 million, prevent 334 laparotomies, and avert 9 maternal deaths annually in the United States. This cost saving nearly tripled if TXA was administered within 3 hours of delivery, with 5 additional maternal deaths prevented.

Secondary analysis incorporating QALYs also showed TXA use to be cost-effective. These findings held through various sensitivity analyses.

Study strengths and limitations

This study is novel in its critical objective to determine the cost-effectiveness of routine use of TXA for PPH in the United States. Robust modeling using Monte Carlo estimation and a variety of sensitivity analyses add reliability to the authors' findings.

This work is limited, however, by the assumptions put into the authors' models. For example, outcome data regarding effectiveness of TXA was taken from the WOMAN trial, which was not performed within the United States. In addition, it is difficult to quantify in dollars an event as profound as a maternal death. The authors recognize that they likely underestimate the "cost" of a maternal death, but that this underestimation would only increase the cost-effectiveness of TXA.

Finally, it is important to take into account that such economic analyses are helpful to inform institutional guidelines and hemorrhage protocols, but that patient-specific decision-making should be individualized based on the clinical scenario at hand. ●