

Cost-effectiveness of I.V. tranexamic acid for treatment of postpartum hemorrhage

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BACKGROUND

- Post-partum haemorrhage (PPH) is one of the complications post delivery accounting for 6-7% of maternal mortality cases in India.
- Standard of care for management of primary PPH as per Indian guidelines includes supportive care, treatment with uterotonics, conservative interventions like uterine balloon tamponade followed by surgical interventions for refractory cases
- TXA is an anti-fibrinolytic drug. It causes competitive inhibition of plasminogen activation. It reduces bleeding by inhibiting breakdown of fibrinogen and fibrin clots.
- India's guidance note on PPH management follows the WHO 2012 guidelines which recommends using TXA only in refractory atonic or traumatic PPH cases within 3 hours of delivery. Based on this, there is no clarity in Indian guidelines over dosage or timing of administration.
- 'Dakshata' checklists and the 'LaQshya' guidelines to improve quality of care have no mention about use of TXA and is not part of the emergency tray

PURPOSE

- This HTA will help in justifying whether India should adopt the latest WHO recommendation of adding IV TXA to all PPH cases by considering both clinical and cost-effectiveness perspectives.
- The study estimates the cost-effectiveness of addition of IV Tranexamic acid to standard care treatment in the Indian public health facilities and the budget impact of introducing tranexamic acid in the Indian public health program.

METHODS

- Decision analytic modelling approach was adopted to answer the given policy question.
- A decision tree model was designed based on Indian guidelines specific to public healthcare levels/facility accessed by women for childbirth.
- Perspective: Disaggregated societal (includes health system plus out-of-pocket expenses for patients).
- Population: Hypothetical cohort of 21 year old women accessing public facilities for PPH management.
- Intervention: IV TXA (100mg/ml/min) addition to standard care within 3 hours of birth.
- Comparator: Uterotonics, supportive care
- Outcome: Cost per QALY gained, number of maternal deaths, surgeries and ICU admissions associated.
- Sensitivity analysis and Budget impact was undertaken.

CONCLUSIONS

- Addition of intravenous Tranexamic Acid for primary PPH management within three hours of birth with an additional dose if required after 30 minutes or within 24 hours if bleeding restarts can be considered in the Indian public health settings from a cost-effectiveness perspective
- Indian policy guidance, training manuals and facility checklists on PPH management have to be updated to reflect this recommendation if accepted

RESULTS

- For an estimated annual cohort of 5,10,915 women who experience primary PPH in India, a disaggregated societal cost of INR 6,607 is incurred per patient for PPH management with an associated gain of 20.25 discounted QALYs. Similarly, management without TXA results in a societal cost of INR 6,486 per patient with a gain of 20.16 QALYs.
- Addition of TXA results in ICUR value of INR 1,470 per QALY gain which is cost-effective.
- This intervention is likely to prevent 389 maternal deaths, 177 surgeries, and 128 ICU admissions per 1,00,000 PPH cases.
- The study findings were robust across sensitivity analysis.
- Budget impact analysis suggested an incremental cumulative increase in financial allocation by 2.3% over a five-year period to that currently allocated for management of primary PPH in Indian public health settings.

Table 1: ICER per case detection

	TXA+SOC	SOC	Increment/ Averted with TXA
Health system cost per patient	₹5,934	₹5,782	₹152 (increment)
Societal cost per patient	₹6,607	₹6,486	₹121 (increment)
Total surgeries (for annual cohort)	19,387	20,293	905 (averted)
Total number of ICU admissions	27,181	27,836	655 (averted)
Total number of maternal deaths	13,923	15,913	1990 (averted)

RECOMMENDATION

- Addition of intravenous Tranexamic Acid for primary PPH management within three hours of birth is costeffective and is recommended for use in the Indian public health system with an additional dose if required after 30 minutes or within 24 hours if bleeding restarts.
- The 'Dakshata' checklist and 'LaQshya' (emergency drug tray) and other Indian guidelines should be updated with this recommendation.