SURVEY of peri operative use of Tranexamic acid in cardiac surgery in UK

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Tranexamic acid is used during cardiac surgery to reduce the blood loss and blood transfusion requirements. We set out to survey the current practice in the cardiac centres within the UK, regarding the administration policy and use of Tranexamic acid.

Methods: We designed a questionnaire and mailed it to all the ACTA linkmen through the help of ACTA, UK. Responses were collected during the four-week period in April/May 2014. Nineteen out of forty two (19/42) ACTA linkmen have responded, yielding a 45% response rate.

Results:

	Administration of Tranexamic acid	Yes	No
1.	Use Tranexamic acid only	63% (12/19)	37% (7/19)
2.	Use either Tranexamic acid or Aprotinin	37% (7/19)	63% (12/19)
3.	Existence of an Institutional Policy for the use of Tranexamic acid	37% (7/19)	63% (12/19)
4	Adherence to BART regime routinely	5% (1/19)	95% (17/19)
5.	Use of Tranexamic acid for all patients on Cardiopulmonary Bypass	90% (17/19)	10% (2/19)
6.	Administration of a Loading dose before skin incision	53% (10/19)	47% (9/19)
7.	Discontinuation of maintenance at the time of skin closure	53% (10/19)	47% (9/19)
8.	Continuation of the infusion on Intensive Care Unit	5% (1/19)	95% (18/19)
9.	Alteration of the dose depending on patient factors	47% (9/19)	53% (10/19)
10.	Observation of post operative seizures as a complication	42% (8/19)	58% (11/19)

Discussion: All the respondents administer Tranexamic acid. However, 37% respondents use Aprotinin in preference to Tranexamic acid for high-risk cases. Ninety five percent of the respondents do not routinely follow the BART protocol for administration. The BART (Blood Conservation Using Antifibrinolytics in a Randomized Trial) study considered a loading dose of 30mg/kg along with a maintenance dose of 16mg/kg/hr and addition of 2mg/kg to the pump for Tranexamic acid as the maximum effective regime [1]. An in vivo study assessed the pharmacokinetics following BART regime and reported that the mean plasma concentrations were consistently higher than the required levels of 100µg.ml^{-1} during surgery and 10µg.ml^{-1} during the first 6 hours post-operatively, needed to achieve either 100% or 80% inhibition of tissue plasminogen activator respectively [2]. Over 40% of the respondents alter the dose in renal failure and also noticed the complication of postoperative seizures. A recent multivariate regression analysis in 11,529 patients has shown Tranexamic acid to be a strong independent risk factor for postoperative seizures and cautions against a total dose exceeding 80 mg.kg^{-1} [3].

The practice amongst the respondents appears to be inconsistent, with the administered doses ranging from as low as 0.5mg/kg to as high as 50mg/kg and 63% of the cardiac centers lack an administration policy. This survey indicates that respondents tend not to use higher doses and consider reducing the dose in the context of renal failure. These survey findings point to the need for establishing a guidance on optimum dose regime for Tranexamic acid which would offer antifibrinolytic benefit whilst being safe to administer. Dissemination of such guidance would promote a safe, effective and uniform standard of administration of Tranexamic acid.

References:

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