Use of Tranexamic Acid On Reducing Blood Loss During Scoliosis Surgery in Chinese Adolescents

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Introduction
Reconstructive spinal surgeries had been associated with large blood loss which was a common potential cause of morbidity. Previous studies reported the use of antifibrinolytic medications could help reduce blood loss during surgery. This study aimed to assess the efficacy of tranexamic acid (TXA) in reducing operative blood loss during posterior spinal fusion for the treatment of severe adolescent idiopathic scoliosis (AIS).

Objectives
To assess the efficacy of tranexamic acid (TXA) in reducing operative blood loss during posterior spinal fusion for the treatment of severe adolescent idiopathic scoliosis (AIS)

Methodology
A retrospective cohort study was carried out on 90 (TXA = 55, Control = 35) female severe AIS patients undergoing posterior spinal fusion with pedicle screw fixation between 2005 and 2010. Patients in TXA group used TXA as an additional antifibrinolytic agent to reduce blood loss, while control group did not, otherwise same clinical settings applied. Descriptive statistics were carried out by Student t-test or Chi-square test. Linear regression modelling was carried out to look for potential risk factors after controlling for confounding factors.
**Result**

TXA group had significantly less intra-operative total blood loss (54.5% reduction) than the control group from the estimation by anesthesia technician (4044 ml vs. 1839 ml, *P*<0.01), hemoglobin drop (3780 vs. 2935, *P*<0.01), and total time taken for surgery (437 min vs. 505 min, *p*<0.01)). Regression models showed that using TXA decreased total blood loss at the average of 8.55 unit (*P*=0.03) after adjusting for possible confounding factors (age, number of fused vertebrae, bone graft, clotting capability, and infusion of coagulation factors). In conclusions, tranexamic acid was shown to significantly reduce blood loss after adjustment with possible confounding factors from this retrospective study. All the patients in this study showed no severe complications which demonstrated the safety of TXA.