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Utilisation of Tranexamic Acid in a patient with Sickle Cell Disease undergoing Posterior Scoliosis Correction Surgery: Safely mitigating blood loss and vaso-occlusive crises

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Statement of the Problem: Patients with Sickle Cell Disease (SSD) have high rates of surgical complications including blood loss and Vaso-Occlusive Sickle Cell Crises (VOSCC); they require careful management including transfusions and meticulous haemostasis. There are no previous case reports of Tranexamic Acid use in association with Adolescent Idiopathic Scoliosis (AIS) surgery and SSD. AIS surgery can be associated with morbidity including high volume blood loss.

Case: PB 15-year-old female, 2 years post-menarchal AIS, SSD. Truncal shift and large right rib hump not fully reduced on Adams forward bend test with right side bending. History of VOSCC, and ICU admission for acute chest syndrome aged 7y. Daily Penicillin V and Folic Acid. Baseline haemoglobin 80g/L. Pre-operative red cell exchange transfusion to reduce risk of VOSCC increased total haemoglobin to 109g/L and reduced percentage of sickle cell haemoglobin (88% to 24%).

Operative Treatment: TIVA anaesthetic utilized for Transcranial Spinal Cord Monitoring. MAP <70mmHg was employed. TXA gave at 10 mg/kg. Posterior Spinal Fusion utilizing all pedicle screw construction from T3-L1. No costoplasty to save blood loss despite rib hump. Misonix Ultrasonic Bone cutter for facetectomies, Haemostat Surgiflo in each pedicle instrumented, Spongestan Foam, Surgical, and bone wax for haemostasis at osteotomy sites. 2 Diathermy 2 generators utilized for simultaneous bipolar and unipolar use. No cell saver was used. One more suction, not two. Estimated blood loss 300ml. satisfactory recovery but protracted wound oozes for 4 days and non VOSCC pain discharged home after eight days.

Discussion: Tranexamic Acid, a synthetic lysine derivative, and antifibrinolytic agent acts by binding to plasminogen and blocking interaction with fibrin preventing dissolution of the fibrin clot. This is the first report of TXA use in SSD and AIS. Longer hospital stays due to pain, aggressive IV fluids to prevent VOSCC.

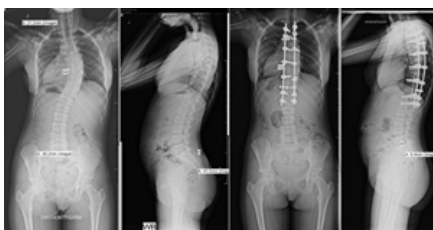


Figure 1. pre- and post-operative spinal x-rays demonstrating 54 degree scoliosis curve, corrected with posterior fusion from T3 to L1.

Biography

Millie Newall is a 5th year medical student who has a passion in developing in the area of Spine Research under the supervision of Mr Darren F. Lui. Mr Darren F Lui is a Consultant Spinal Surgeon who deals with the entire breadth of Complex Spinal Problems from Deformity, Trauma and Cancer. He also specializes in Adolescent & Paediatric Deformity Surgery such as Scoliosis and Kyphosis/Scheuermann's

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