SECONDARY HAEMMORAGE POST-TONSILLECTOMY AND ADENOID SURGERY MANAGEMENT - ED - CHW

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- Post-tonsillectomy haemorrhage is a rare but potentially life-threatening complication of the most commonly performed procedure in children. Most of the children are admitted to the hospital for treatment and few may have to return operating theatres for surgical haemostasis.
- There can be significant morbidity associated with the condition which includes hospital stay, intravenous access, medications and rarely re-operation and blood transfusion.
- Post-operative haemorrhage can be reduced by antifibrinolytic agents such as Tranexamic acid (TXA).
- This guideline has been developed in conjunction with Emergency, ENT and Haematology teams and with input from pharmacy
- This guideline provides guidance regarding assessment and management of the children presenting to emergency with secondary post-tonsillectomy haemorrhage.

CHANGE SUMMARY

- NA - new Document

READ ACKNOWLEDGEMENT

- Read Acknowledgment required for participating staff in the emergency department and ENT department at CHW.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st July 2020	**Review Period**: 3 years
Team Leader:	Emergency Registrar	**Area/Dept**: Emergency Department - CHW

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Background

Tonsillectomy is one of the most commonly performed procedures in children.

Most of the surgeries are performed as day surgeries or overnight stay.

Post-operative bleeding is a serious, yet the most common complication of tonsillectomy. It can be divided into primary (within 24 hours of surgery) and secondary (after 24 hours of surgery). Generally, primary or reactionary haemorrhage is known to be more serious and more likely to need significant intervention. Though secondary haemorrhage is not as serious, it can be associated with significant morbidity and healthcare costs associated with it.

The incidence of post-tonsillectomy haemorrhage severe enough to need treatment is 2-10% while 1-5.5% would need re-operation for haemostasis.[1]

Tranexamic acid (TXA) is a potent anti-fibrinolytic agent that acts by binding to plasminogen and blocking the interaction of plasminogen with fibrin, thereby preventing dissolution of the fibrin clot. TXA has been effective in reducing peri-operative blood loss, transfusion requirements, and reduced blood loss in gynaecological bleeding, all-cause mortality and mortality due to bleeding in trauma. TXA is well tolerated and has been proven to be safe in large clinical trials.[2]

Mucosal sites such as oropharynx have high fibrinolytic potential hence use of TXA in reducing bleeding in these areas would be effective.

TXA has led to significant reduction of tonsillectomy blood loss.[3]

Currently, when children with secondary post-tonsillectomy haemorrhage present to the emergency department they will be assessed for haemodynamic stability and be admitted for observation if not actively bleeding. They are reviewed by the ENT team and monitored in the ward with regular observations. They are managed expectantly with supportive treatment including analgesia, parenteral fluids and usually antibiotics.

Assessment

History

(Please note: Children discharged from CHW will be sent home with tranexamic acid tablets, which can be cut in half or kept full and one tablet is dispersed easily in 5mL of water, patients can also have a part preparation administered depending on weight. Pharmacy will dispense enough tablets for 48 hours before discharge.)

Age

Sex

Timing of surgery-confirm primary/secondary haemorrhage

Current medications, which may include pain relief and antibiotics

Past history of bleeding disorder and other significant, past medications

Any history in the preceding days- the onset of increased pain, or temperature or bad breath

Present history-amount of bleeding, colour of blood-red/brown, blood stained mucus or frank blood, bleeding ongoing or stopped, vomiting, oral intake, pain scale, fever, h/o nose blowing/coughing, halitosis

Examination

A: airway-stridor, obstruction

B: breathing-effort, work of breathing, respiratory rate

C: circulation-heart rate, blood pressure, Capillary refill time

General appearance

Temperature

Hydration

Local examination-source of bleeding, ooze/clot/healing, signs of infection, site and size of bleed/clot

Systemic examination

Management

Emergency department

1. Resuscitate if necessary
2. Observations-Temperature, pulse rate, respiratory rate and blood pressure

Indications for urgent ENT review **Contact ENT registrar urgently if any uncertainty via switchboard.**
1. Airway obstruction 2. Hemodynamically unstable 3. Ongoing active bleeding 4. Further bleeding after initial stabilization

3. Obtain IV access-blood samples to pathology-FBC, EUC, blood culture, coagulation screen, group and hold
4. Keep fasted till ENT review- Consult with ENT team regarding fasting instructions
5. IV fluids-based on estimate of blood loss and hydration assessment
6. Consider IV antibiotics-benzyl penicillin recommended (discuss with ENT)
7. Tranexamic acid -to be commenced as soon as possible
    i. at home by parents
    ii. upon assessment and as soon as clinical stability is established in the emergency department

Preferably:

PO: 15 mg/kg every 8 hours (maximum 1.5 g/dose)

OR

IV: 15 mg/kg (maximum 1 g/dose) every 8 hours (if child is refusing oral intake)

(Please refer to Appendix 1 for more information)

8. Admit under ENT team for ongoing observations and monitoring
9. Monitoring: Hourly observations for first four hours after admission

   If stable may then progress to 4th hourly TPR and 8th hourly BP

Ward

1. Monitoring : Hourly observations for first four hours after admission, if stable may then progress to 4th hourly TPR and 8th hourly BP
2. IV fluids-to maintain hydration and tapered to oral intake
3. IV antibiotics to continue
4. Ensure adequate analgesia
5. Follow up investigations
6. Discharge criteria:
   - **i.** normal observations
   - **ii.** Adequate oral intake
   - **iii.** No further bleeding for 24 hours and no clot present when oral cavity is examined

- If any further bleeding occurs contact the ENT registrar

Appendix: Tranexamic acid

Dose and availability:

PO: 15-25 mg/kg every 8 hours (maximum 1.5 g/dose).

Available as a 500 mg tablet (scored) which is freely soluble in water. Where clinically indicated round dose to the nearest half tablet. Whole or half tablet can be crushed and dispersed in water and part-dose administered. (Can be mixed with a spoonful of yoghurt or apple puree if fasting status does not need to be maintained)

Patients will continue on the tranexamic for 24 hours after the last bleeding episode

Patients will go home from CHW with 48 hours' worth of tranexamic acid supply for as needed use

IV: 10-15 mg/kg (maximum 1 g/dose) every 8 hours. May be given undiluted or diluted to a convenient volume with sodium chloride 0.9% or glucose 5% slowly over at least 10 minutes.

Available as 500 mg/5 mL injection

Precaution:

Consider reducing the dose in renal impairment

Off-label use in children for this indication

Drug-interactions:

Avoid administering with Factor IX complex or anti-inhibitor coagulant concentrates due to the increase risk of thrombosis.

Contraindications:

Active intravascular clotting; subarachnoid haemorrhage, history of convulsions; thromboembolic disease; hypersensitivity to tranexamic acid or any component of the formulation

Adverse effects:

Common (>1%), Oral: nausea, vomiting, diarrhoea;

Rare (<0.1%) thrombosis, visual disturbances including transient disturbance of colour vision; Oral: allergic skin reactions; IV: seizures (dose-related, occur in cardiac surgery), hypotension and dizziness (particularly after rapid administration).

References:

1. David C. Warltier, Emmanuel Marret, Antoine Flahault, Charles-Marc Samama, Francis Bonnet; Effects of Postoperative, Nonsteroidal, Antiinflammatory Drugs on Bleeding Risk after Tonsillectomy Meta-analysis of Randomized, Controlled Trials. Anesthesiology 2003;98(6):1497-1502
2. McCormack, P.L. Drugs (2012) 72: 585. https://doi.org/10.2165/11209070-000000000-00000
3. Chan, C.C., Chan, Y.Y. & Tanweer, F. Eur Arch Otorhinolaryngol (2013) 270: 735. https://doi.org/10.1007/s00405-012-2184-3
4. Perth's Children's Hospital Post tonsillectomy haemorrhage guidelines. Available at: https://pch.health.wa.gov.au/For-health-professionals/Emergency-Department-Guidelines/Post-tonsillectomy-haemorrhage,
5. Starship Clinical guidelines Tonsillectomy - management of post-tonsillectomy bleed in CED. Available at: https://www.starship.org.nz/for-health-professionals/starship-clinical-guidelines/t/tonsillectomy-management-of-post-tonsillectomy-bleed-in-ced/,
6. Australian Medicines Handbook. Children's Dosing Companion (AMH-CDC). Australian Medicines Handbook Pty Ltd, Adelaide, SA; 2018.
7. Paediatric Formulary Committee. BNF for Children. Basingstoke, UK: Pharmaceutical Press; 2018-2019.
8. Takemoto CK, Hodding J, Krause DM. Pediatric and Neonatal Dosage Handbook. 25th ed. Hudson, Ohio: American Pharmacists Association: Lexi-comp; 2018-2019 / UpToDate, accessed via Clinical Information Access Portal (CIAP) 2019.
9. Paediatric Formulary. Guy's and St.Thomas', King's College and University Lewisham Hospitals, 9th edition. Guy's and St Thomas' NHS Foundation Trust. Revised December 2012 also available online as Evelina London Paediatric Formulary External Resource.
10. Australian Medicines Handbook. Australian Medicines Handbook Pty Ltd, Rundle Mall, Adelaide, SA; 2018.