Association of Paediatric Emergency Medicine

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TRANEXAMIC ACID IN PAEDIATRIC MAJOR TRAUMA: A TARN DATA ANALYSIS 2008–2020

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10.1136/archdischild-2021-rcpch.665

Background Tranexamic Acid (TXA) is an anti-fibrinolytic agent that promotes haemostasis and counteracts coagulopathy in trauma. A wealth of research supports TXA use in adults, yet no large trials have been performed in paediatric populations. The RCPCH in 2012 advocated TXA use in paediatric trauma, recommending future evaluation of outcomes utilising the Trauma Audit and Research Network (TARN).

Objectives To describe TXA use in paediatric trauma over time, exploring association with best practice statements and evidence from adult trials. Primary outcome was to determine change in prevalence of use over time. Secondary outcomes captured details or impact of change, including thrombotic events, blood product use, surgical intervention, and evaluation of injury patterns.

Methods Retrospective analysis of TARN data between 2008–2020 for patients under 16 years in England and Wales, with no clinical exclusions.

A time series analysis was performed, with descriptive statistics given as mean (95% CI) or median (IQR)

Results 27,385 patients were included of which 18535 (67.7%) were male. 7804 (28.5%) were aged 12–15, 6966 (25.4%) aged 6–11, 6570 (24%) aged 2–5 and 6045 (22.1%) under 1. Overall mortality within 30 days was 799 (2.9%).

TXA use increased year on year, from 25 (1.2%) in 2012 to 196 (10.1%) in 2020. Apart from an initial rapid rise in use in 2012–2013, no other annual progression showed a disproportionate increase. There was no change in 30-day mortality rate over time, ranging between 2.1% (in 2015) and 3.3% (in 2016). Change over time analysis showed no significant increase in thrombotic complications. In 2012 data revealed 4 (0.2%) thrombotic events compared to 2 (0.1%) in 2020, with a tenfold increase in TXA over same time period.

In total, 1346 (4.9%) patients received TXA, of which 735 (54.6%) were aged 12–15. Road traffic collisions (64%) and penetrating injuries (12.7%) were the commonest mechanisms of injury in those receiving TXA. In relation to trauma severity, the median Injury Severity Score in those treated with TXA was 20 [IQR 10–33], compared to 9 [IQR 9–16] in untreated patients; 829 (61%) of those treated with TXA were admitted to ICU, compared to 4849 (18.6%) without. Blood products were transfused in 245 (18.2%) patients receiving TXA compared to 110 (0.4%).

Conclusions We have demonstrated consistent increases in proportional use of TXA over time since the RCPCH statement in 2012, with no change in mortality. Despite significant increase in TXA use, the incidence of thrombotic events has remained stable. Within the constraints of the small rate of adverse events in this large cohort, there is no evidence to suggest harm following TXA treatment.

TXA is more likely to be given in those aged 12–15 years. This may be explained by different trauma patterns, with road traffic accidents and penetrating injuries more common in

older children. Administration of blood products and ICU admission were strongly associated with administration of TXA. Further analyses of change over time are ongoing for secondary outcome analyses

Association of Paediatric Palliative Medicine

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DEVELOPMENT AND USE OF SYMPTOM MANAGEMENT PLANS IN GUIDING CARE OF CHILDREN REFERRED TO A TERTIARY PALLIATIVE CARE SERVICE

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10.1136/archdischild-2021-rcpch.666

Background The number of children living with life limiting conditions (LLC) has increased over the last 17 years with a current prevalence in the UK of 66.1 per 10000. These children often require tertiary palliative care input for management of symptoms. For many, particularly those at the end of life, specialist palliative care teams develop individual symptom management plans and/or syringe driver plans (SMP/SDP) to guide management of pain and distressing symptoms such as breathlessness, nausea and vomiting.

There is no national guidance on how and when such plans should be used, and their implementation varies across the country. The National Institute of Clinical Excellence (NICE) recommends that an agreed treatment plan should be used for children in the last hours or days of life, but does not specify use of symptom management plans prior to this.

Objectives To identify the development and use of SMP/SDP in management of symptoms in children referred to a tertiary palliative care service based in a tertiary paediatric hospital, with particular attention medications used at the end of life (EoL).

Methods Seven month (February–August 2020) prospective, comparative study of all children referred to a tertiary palliative care service including: recording of all referrals with number of SMP/SDP written, type and number of medications prescribed in the SMP/SDP and used by the patient at the EoL.

Results 102 patients were referred to the tertiary palliative care service over the study period. This included new referrals for all non-oncological conditions and all oncology patients who required a SMP including those oncology patients who were referred to oncology outreach service, a part of the palliative care service, but who may not have required palliative care input at the time of referral. The majority of referrals were oncology (25%; 25/102), followed by cardiology (17.6%; 18/102), genetics (11.8%; 12/102) and metabolic (10.8% 11/102).

87 SMPs were written for a total of 58 patients. 26 patients died without a SMP. 43 patients were managed with a SMP/SDP at the EoL. The median number of medications included in a SMP was 13 (range 3–32), with 2 medications (range 0–14) used at EoL. The median number prescribed in SDPs was 6 (range 2–10), with 2 drugs used at EoL (range 0–7). The most common medications prescribed and used were opiates followed by midazolam. The most common

symptoms managed were pain, breathlessness, nausea, vomiting, and constipation.

Conclusions Patients with LLC are referred to palliative care from a number of paediatric subspecialties, with the majority of referrals coming from cardiology and oncology. SMPs and SDPs are written for a significant number of patients referred to palliative care. Perhaps not surprisingly, often only a few drugs from the SMP/SDP were required at the end of life, particularly opiates and midazolam.

Further study including the perspectives of all stakeholders –parents and professionals- to better understand the purpose, use and impact of SMP/SDP on symptom control, particularly at the EoL.

Of note this project took place during the coronavirus pandemic, and hence bears repeating when circumstance change.

Paediatricians with Expertise in Cardiology Special Interest Group

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A CASE REPORT OF RE-INVESTIGATION OF A PATIENT TRIGGERED DUE TO THE PANDEMIC- DIAGNOSIS OF AORTOPULMONARY (AP) WINDOW WITH PULMONARY HYPERTENSION

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10.1136/archdischild-2021-rcpch.667

Background Abstract:

The unprecedented COVID situation has led to a steep learning curve. This is a case report of a patient who previously known to have a diagnosis of innocent murmur was re-investigated and found to have a rare congenital heart disease – aorto-pulmonary window (AP window).

Objectives Introduction:

‘No question is simple’. Alert parents and an astute GP aided in the re-investigation of a murmur which led to the re-visiting the diagnosis from an innocent murmur to Aortopulmonary window (APW).

APW is a rare congenital heart defect occurring as an isolated cardiac lesion or with other cardiac anomalies and rarely with abnormal coronary arteries. Its clinical presentation is dependent on the size of the defect and the associated lesions.

Methods Case report:

A 4.5-year-old boy referred to PEC(Paediatrician with expertise in cardiology) clinic due to the query raised by parents - ‘What are the implications of the pandemic on my child with a murmur?’

This murmur had which was previously investigated when he was a toddler and found to be innocent, was assessed by the GP during the pandemic. Apart from mild difficulty breathing at rest on occasion, the parents posed no other concerns. Parents on reflection comprehend why he did not enjoy physical sports like his peers.

On clinical examination, he had frontal bossing, prominence of the left chest wall and engorged vein in the upper part of chest. He had visible apical impulse, hyperdynamic impulse, gallop rhythm. The P2 was loud and 4/6 pansystolic murmur that radiated all over the precordium and back, loudest at the left lower sternal edge. Rest of his examinations were normal.

Results A further ECHO confirmed AP window with pulmonary hypertension. He had an initial device closure but a residual shunt was identified following a diagnostic cardiac catheterization. He has now had corrective surgery was performed with no intraoperative complication and good echo results. Pulmonary hypertension has persisted and he will be under continued to be followed up in cardiac clinic.

He is going to be followed up in 4–6 weeks in a cardiology clinic.

Conclusions Discussion:

No question is simple and although it has been an unprecedented time last year, it led to re-visiting the child's clinical condition and thus a rare diagnosis.

APW consists of a communication between the ascending aorta and the pulmonary trunk and/or the right pulmonary artery. Some literature suggests a majority of the APW is associated with other cardiac anomalies. Our patient was a case of isolated APW.¹

Literature also suggests APW can be confused with other defects. Clinical findings associated with an adequate echocardiogram can provide the information for the correct diagnosis.

APW has similar hemodynamic features to a patent ductus arteriosus or, even more so, to a common truncus arteriosus (CTA).

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Paediatricians with Expertise in Cardiology Special Interest Group

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OUTCOME OF ADOLESCENT ONSET POTS (POSTURAL ORTHOSTATIC TACHYCARDIA SYNDROME)

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10.1136/archdischild-2021-rcpch.668

Background POTS (Postural Orthostatic Tachycardia Syndrome) is an autonomic dysfunction associated with symptoms of dizziness, headaches, palpitations, fatigue, pre-syncope feelings etc. This is diagnosed with a positive tilt table test which shows a increase in heart rate of more than 40 beats per minute on tilt with stable blood pressures or a sustained heart rate of more than 120 beats per minute in the first 12 minutes of tilt. In children this is commonly diagnosed in the adolescent age group and there is currently not much information on the long-term outlook in this subgroup of children. This case series looks at a cohort of 20 adolescents with POTS and their long-term outcome.

Objectives To look at the clinical course of children with tilt positive adolescent POTS to assess symptom resolution or progression.

Methods Review outcomes with 20 children with adolescent POTS and their clinical information. Children with diagnosis of chronic fatigue syndrome were not included in this study. Clinic follow up letters were reviewed.

Results Of the 20 children in the study there were 15 girls and 5 boys. All of the patients were diagnosed following a positive tilt table test. The age range at diagnosis were