encephalopathic with decerebrate posturing in subclinical status epilepticus.

She was managed in PICU for refractory status epilepticus and raised intracranial pressure.

There is also a family history of early stroke (maternal cousin with CVST at 8yo on long-term anticoagulation).

Results Her inflammatory markers continued to increase despite antibiotic coverage at meningitic doses and she was treated for a CNS vasculitis/Catastrophic Antiphospholipid syndrome with IV anticoagulation (UFH), high-dose steroids then IVIG. Her neurological state gradually improved (coma -> vegetative state -> minimally conscious -> conscious). This was followed by Rituximab therapy 375 mg/m² weekly x4. Her neurological function gradually improved as she was able to verbally communicate and developed anti-gravity movement of the right side.

Hypertension and fever also settled, and inflammatory markers steadily decreased post treatment.

Investigations:

ANA, dsDNA, ENA negative pANCA borderline positive but MPO, PR3 Antibodies negative

Anticardiolipin antibodies negative (on warfarin)

Infectious screen (HIV, Hepatitis, COVID-19 serology, Mantoux test, CSF Acid-fast bacilli) - negative

CSF cell count - 33 white cells (neutrophils), protein 183mg/dL

Skin biopsy report (26/11/2020) – Neutrophils, lymphocytes of leucocytoclasia seen in vessels of dermis. Thrombosis of fibrinoid necrosis of vessel walls and extravasated red blood cells also seen – Obstructive vasculopathy for clinical correlation; Possible Sneddon syndrome/Antiphospholipid syndrome

Conclusions There are few case reports describing the clinical course and treatment of this rare syndrome.

In our case, treatment for Catastrophic Antiphospholipid syndrome (steroids, IVIG, rituximab and anticoagulation) was beneficial in improving the clinical outcome.

Association of Paediatric Emergency Medicine

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ULTRASOUND GUIDED VASCULAR ACCESS SHOULD BE ROUTINELY TAUGHT TO ALL PAEDIATRICIANS

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Background Paediatric vascular access can be notoriously difficult due to small vessels and patient cooperation. Studies have shown ultrasound (US) guided technique to be a more successful method of vascular access in experienced hands, especially in children with difficult access.

US guided vascular access is well established within adult medicine practice, especially emergency and intensive care, whereby point of care ultrasound (POCUS) is mandated. At present there is no standardised UK paediatric POCUS curriculum. Most UK paediatricians will not gain any US experience, unless undertaking acute sub-specialist placements.

Within district general hospitals (DGH), children with difficult access are often escalated to adult anaesthetists who are usually less experienced in paediatrics. Some children are transferred to tertiary centres where there is more US

expertise. To enable best patient care within their local setting, US guided paediatric vascular access should be routinely taught to paediatricians in DGH and tertiary settings

Objectives To date there have been no studies exploring the experience and significance of US guided vascular access training amongst DGH-based UK paediatricians. We developed US training sessions for paediatricians in our busy DGH, and evaluated their confidence levels, feedback and progress with this skill.

Methods Small-group sessions were led by our accredited and experienced paediatric advanced nurse practitioner (ANP) over a year. Two-hour sessions covered theoretical aspects and a practical session. Recommendations of practice bespoke to paediatrics were taught. Participants learned to map veins and practiced US cannulation on the gelatinous 'phantom' model.

A mixed-method research methodology was used to evaluate the course impact. A questionnaire was provided, asking attendees to evaluate confidence levels before and after sessions, and open-space for comments.

Results 30 paediatricians, from senior house officers to consultants, attended sessions. 75% had never conducted US vascular access and 96% did not feel confident prior to the session. Following sessions, 100% of participants felt significantly more confident, and would consider attempting this on real patients. Qualitative comments showed they valued the sessions: 'good opportunity to practice vein mapping and cannulation on gel model'. 100% felt US guided vascular access should be taught routinely within training. Five participants used this new skill, following the sessions, to undertake successful US- guided cannulation in acute resuscitation contexts.

Conclusions This study demonstrates the effectiveness and usefulness of delivering vascular access training to DGH paediatricians. It enabled improved self-reported confidence, which translated into improved patient care in real-life acute scenarios. However, further research in a larger cohort of participants is required to truly evaluate its impact.

We recommend that all UK paediatricians should be routinely trained in US guided vascular access, to promote better quality care for all paediatric patients within their local settings. The importance and role of US guided paediatric vascular access is still lacking in recognition, and demands wider acceptance. Further work is needed with appropriate stakeholders to endorse and prioritise the integration of this essential skill into the UK paediatric curriculum.

Quality Improvement and Patient Safety

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REDUCING THE ENVIRONMENTAL IMPACT OF INHALER USE AND DISPOSAL WITHIN PAEDIATRICS AND THE LOCAL COMMUNITY

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Background Doctors are becoming increasingly aware of the impact of healthcare on climate change, with the RCPCH declaring a climate emergency in October 2020. The NHS has set the goal to become world's first national health system to commit to 'carbon net zero'.

Paediatricians choose aerosol metered dose inhalers (MDI's) over dry powder inhalers (DPI's) in view of their suitability for young children whom have difficulty co-ordinating breathing and simultaneous medicine administration.

MDI's have the largest carbon footprint of the inhaler types and are identified as an NHS carbon hotspot. It is therefore imperative we consider ways to reduce the carbon footprint of this valued commodity.

Evidence suggests that 7 in 10 inhalers are thrown away before being empty and the vast majority are disposed in general waste, allowing the potent greenhouse gases to escape and contribute to global warming. Inhalers should be returned to pharmacies whereby they are incinerated and the harmful gases degraded.

Objectives Our aims were to offer and promote safe inhaler disposal and a recycling scheme, as well as empowering both staff and patients to make sustainable inhaler decisions at an individual level.

We intended to learn about the carbon footprint of various inhaler types to allow carbon saving alternatives to be implemented.

Methods Upon exploration of the current pharmaceutical practices within our trust, we were pleased to discover only a low volume salbutamol MDI, Salamol, was issued. In contrast, GP's in our CCG were predominantly prescribing

Ventolin, which generates the largest carbon footprint of all MDI's on the market; three-times that of Salamol.

We worked with our CCG to create a decision support software message for GPs to use inhalers with lower carbon footprints, appearing when Ventolin is prescribed to recommend Salamol instead. The CCG made reducing the use of high carbon inhalers a key prescribing priority and a summary of greener inhalers was distributed to all prescribers.

The trust was enrolled in an inhaler recycling scheme, with staff and patients educated about the importance of safe inhaler disposal.

Results Our work with our CCG resulted in the number of Ventolin inhalers prescribed being reduced by 31% and replaced with Salamol, with an estimated saving of 363 tonnes of CO₂e annually.

Locally we gained positive feedback from staff and patients who felt empowered to make sustainable choices, and all expressed a willingness to dispose of inhalers to reduce the negative environmental impacts. It is difficult to quantify the carbon saved by empowering patients with this knowledge, however if we estimate that 30% of our patients changed their behaviour and disposed inhalers at their local pharmacy, 11 tonnes of CO₂e would be saved annually. Assuming that each patient uses 4 inhalers per year, this saving would be 44 tonnes CO₂e.

Conclusions We all have a responsibility to protect our climate, but as paediatricians this is amplified by our role to advocate for the health and wellbeing of our young patients. This project demonstrates that by learning about the resources and systems we use we can make significant carbon savings.

British Paediatric Neurology Association

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FACIO-BRACHIAL DYSTONIC SEIZURES AND AUTOIMMUNE ENCEPHALITIS – A POST COVID-19 NEUROLOGICAL PRESENTATION?

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Background Facio-brachial dystonic seizures (FBDS), which affects the ipsilateral face and arm, is a disorder in the watershed between epilepsy and movement disorders, and a transitional presentation of limbic encephalitis.

It is rarely described in children.

Objectives We present an unusual case of presumed autoimmune encephalitis - with the only positive investigations being Anti-TPO antibodies and COVID-19 antibodies.

Methods 17-month-old male presenting with the following different, progressive event types:

1) Clusters of focal motor seizures described as head and eyes deviating to the left and occasionally associated with stiffening of the upper limbs/entire body

2) Focal dyscognitive seizures described as staring episodes associated with increased aggression then unresponsiveness with eyes deviating upwards to the right

3) Clusters of facio-brachial dystonic seizures described as right eyelid and facial twitching with posturing upward movement of ipsilateral arm

These events were associated with developmental regression mainly involving speech/language and behaviour change.

This was preceded by upper respiratory tract symptoms 1-week prior.

Results This was associated with resistance to conventional AED's (carbamazepine, phenytoin, clonazepam) but response to immunosuppression (steroids and IVIG).

Initial EEG showed diffuse background slowing and independent right and left temporal sharp waves. This improved post immunomodulation.

MRI brain was normal. CSF studies were normal (CSF acellular, protein 31 mg/dL)

Autoimmune encephalitis panel by IIFT (NMDA, AMPA1, AMPA2, GLUR1/GLUR2, CASPR2, DPPX, LGI1, GABAR1/B2) negative

Anti-TPO Ab 72.1 (elevated), anti-thyroglobulin Ab and thyroglobulin negative (post methylprednisolone pulse x2)

COVID-19 IgM Ab 1.416, IgG 0.229; SARS-CoV-2 Nasopharyngeal swab negative

He was treated as presumed autoimmune/limbic encephalitis initially with steroids, followed by IVIG. Seizure frequency improved significantly 1-week post IVIG, however mild improvement in the developmental regression and altered behaviour. He continues on a tapering prednisolone dose over the next 4 months.

Conclusions This case highlights the association of facio-brachial dystonic seizures and limbic encephalitis in a child.