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

564

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.

We have considered whether this can be attributed to Hashimoto's encephalopathy as a post-inflammatory neurological manifestation of SARS-CoV-2.

British Association of Perinatal Medicine and Neonatal Society

568

RETINOPATHY OF PREMATURITY: READABILITY ASSESSMENT OF ONLINE PATIENT INFORMATION

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Background Retinopathy of Prematurity (ROP) is one of the leading causes of childhood blindness with increasing incidence as survival rates of premature infants improve over the years. Parents and families are increasingly using the internet to access health information to supplement information and confirm their understanding from healthcare professionals and with rather extensive conditions associated with prematurity, it is important that information accessed is accurate, easy to read and comprehend.

Objectives We aim to evaluate the readability of online health information regarding ROP.

Methods Readability assessment of online ROP information was evaluated using two validated readability instruments by two independent reviewers: Flesch-Kincaid grade level (FKGL) and Simple Measure of Gobbledygook (SMOG). Top 20 websites returned by a Google.co.uk search were analysed and only relevant body texts or bullet point texts related to parental information were analysed. Webpages intended for healthcare professionals were excluded. These scores were then compared to the U.S Department of Health and Human Services (USDHHS) reading-level categories: easy to read (below 6th grade level), average difficulty (7th to 9th grade level), and difficult (above 9th grade level).

Results 17 websites were analysed. More than 60% of the websites were classified as difficult to read for both FKGL and SMOG scores. Less than 10% of the websites were easy to read for both FKGL and SMOG scores. The median FKGL scores of were 9.9 and 9.8 for reviewers 1 and 2 respectively and the median SMOG scores were 9.3 and 9.7 for reviewers 1 and 2 respectively. Intraclass correlation coefficient for both scores were 0.99 (high).

Conclusions The World Wide Web has revolutionized parental education and when presented effectively, is a powerful tool that has great potential for health professionals to increase health literacy among the general population. The readability of online patient-oriented material for ROP is not consistent with the average public reading capability which could potentially result in confusion, poor understanding and misinterpretation. This could lead to suboptimal adherence to follow-up appointments and refusal of treatment. We recommend that health professionals should consider using readability scores when producing patient information resources. We also suggest that recommendations, guidance and standards for publishing

of patient-oriented literature on the Web ought to be put in place to ensure that the targeted audience could comprehend and act upon the contents.

British Association for Paediatric Nephrology

571

COVID-19: EXPERIENCES OF LOCKDOWN AND SUPPORT NEEDS IN CHILDREN AND YOUNG ADULTS WITH KIDNEY CONDITIONS

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Background During the initial COVID-19 pandemic, young United Kingdom (UK) kidney patients underwent lockdown and those with increased vulnerabilities socially isolated or 'shielded' at home. The experiences, information needs, decision-making and support needs of children and young adult (CYA) patients or their parents during this period is not well known.

Objectives To understand the concerns and decision-making in CYA during the first lockdown, and perform subgroup analysis on shielded vs non-shielded patients

Methods UK wide online survey co-produced with patients was conducted in May 2020 among CYA aged 12–30, or parents of children aged <18 years with any degree of chronic kidney disease. Participants answered qualitative open text alongside quantitative closed questions. Thematic content analysis using a three-stage coding process was conducted.

Results 118 CYA (median age 21) and 197 parents of children (median age 10) responded. Predominant concerns from CYA were heightened vigilance about viral (68%) and kidney symptoms (77%) and detrimental impact on education or work opportunities (70%). Parents feared the virus more than CYA (71% vs 40%), that their child would catch the virus from them (64%) and adverse impact on other children at home (65%). CYA thematic analysis revealed: strong belief of becoming seriously ill if they contract COVID-19, lost educational opportunities, socialisation, and career development, and frustration at public for not following social distancing rules. Positive outcomes included improved family relationships and community cohesion. Only a minority (14–21% CYA and 20–31% parents, merged questions) desired more support. Subgroup analysis identified greater negative psychological impact in the shielded group.

Conclusions This is the first study specifically surveying CYA with kidney conditions and their parents' experience of the COVID-19 pandemic during lockdown. We found substantial concern and need for accurate tailored advice for CYA based on individualised risks to improve shared decision making.