Young People's Health Special Interest Group

733 AN OVERVIEW OF ADOLESCENTS PRESENTING TO A TERTIARY CENTRE WITH LOW WEIGHT

Stephanie Proulx-Cabana, Ngozi Oketah, Terry Segal. *University College of London Hospital*

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Background Low weight in young children is a common presentation in paediatrics and often easily recognised by paediatricians but not as easily identified in the adolescent population. Underweight in adolescents can be a sign of eating disorders or other medical illnesses that can affect their energy levels, growth and development and occasionally be life-threatening.

Objectives The aim of this study was to identify all adolescents referred to our secondary and tertiary service that were identified as being underweight or having sudden onset weight loss and to describe their presentation, management and outcomes.

Methods Patients were identified using the electronic health record system. Their records were searched to obtain information on their referral reason, weight on referral, symptoms, diagnosis including mental health co-morbidities if present and their follow-up outcomes.

Results 55 patients were identified from our database, of which 4 were excluded because they were referred but attended their appointment at the Adolescent Clinic. Our sample was composed of 76% of female. The average age at presentation was 15.6 years old (11.6–18.8). The average BMI at presentation was 18.1 kg/m² (13.27–27.94). 25% of our sample presented with a weight for height <80%. Patients had one or two reasons for referral. The most common reasons for referral were suspected chronic fatigue syndrome (47%), underweight (25%), weight loss (23%) and abdominal pain or headaches (16%). Concerns about weight were only mentioned in the referral letter for 27 out of the 37 adolescents who received the diagnosis of underweight or weight loss at initial presentation. Another 25% (13/51) of adolescent develop a new-onset weight loss while they were followed-up with our team. Abdominal symptoms were present in 68% of adolescents of which abdominal pain was the most common (17/35). Of the patient presenting abdominal symptoms, 16/35 (46%) were reviewed by gastroenterology and 9/35 (26%) were diagnosed with Functional gastro-intestinal disorders. Of our sample, 19/51 (37%) were diagnosed with an eating disorder and were referred to mental health services. Other common mental health co-morbidities included anxiety (27%) and low mood (25%).

27/51 (52%) of our patients were referred to a dietician and of these, 85% had improved their weight at the end of follow-up. Of those who deteriorated during follow-up, 2 were diagnosed with an eating disorder, 1 was suspected to have an eating disorders and 1 had gastroparesis.

Conclusions Our study reveals the importance of early identification and management of underweight in adolescents. Underweight is not being recognised sufficiently, as concern about weight was not identified in the referral letter of almost a third of patient who were diagnosed with low weight or weight loss at their first assessment by our team. Most Eating disorders peak in adolescents and studies have shown that poor recognition leads to chronicity into adulthood with

significant impact on adolescent growth, puberty and psychological development.

British Paediatric Neurology Association

734 SODIUM VALPROATE IN FEMALES: IS IT EVER A GOOD IDEA?

Matthew Sayers, Nicola Bailie. *Northern Health and Social Care Trust*

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Background Sodium Valproate is a common and effective anti-epileptic medication for a range of seizure disorders. Its use has been markedly reduced in females due to known teratogenicity.

Objectives This audit aimed to examine the epidemiology of the female patients taking Sodium Valproate in a district general epilepsy service, and to assess the indications and monitoring around this.

Methods A proforma was designed to collect data on the clinical characteristics of the female patients attending the paediatric epilepsy service in a district general hospital. This took into account their age, epilepsy diagnosis, current and previous anti-epileptic drug treatment, ongoing indication for Sodium Valproate, and if they had recently completed the MHRA documentation appropriate for their age. Data on all 17 patients who matched the inclusion criteria was collected.

Results 14 patients were under the age of 10, and of the 3 aged over 10 years old, 2 had severe learning difficulties and were felt very unlikely to become pregnant. 5 children were being treated for Childhood Absence Epilepsy, 5 for various Intractable Epilepsies under supervision of Paediatric Neurology, 5 for focal epilepsy, 1 for Idiopathic Generalised Epilepsy and 1 for Benign Infantile Seizures. In 9 cases care was shared with Paediatric Neurology. In 3 cases changing to an alternative antiepileptic had been suggested but had been refused by the child's parents. All children had up to date, age appropriate MHRA documentation completed.

Conclusions Sodium Valproate continues to be used as a well-tolerated and efficacious antiepileptic medication in district general settings. Although it should be used with care in female patients due to its risks of pregnancy, this audit supports its use in the appropriate clinical context.

British Paediatric Respiratory Society

736 CHANGING HORIZON OF ASTHMA MANAGEMENT IN CHILDREN DURING COVID – 19 PANDEMIC

¹Caroline Ponmani, ²Chandu Wickramarachchi, ²Louise Mathers, ²Harinder Sahota, ²Venkata Bhurabaganda. ¹BHRUT; ²Barking Havering and Redbridge NHS Trust

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Background An unprecedented reduction in the number of children presenting to the Paediatric Emergency Department (PED) with asthma and viral induced wheeze (VIW) was observed in the trust during the pandemic. The PED in the trust receives 3300 attendances of paediatric asthma and VIW annually with 780 hospitalisations.. There is a cohort of 120 children attending 3 or more times in a year. The common

issues noted in this cohort were lack of compliance, varying levels of engagement and missed clinic appointments. When the pandemic was declared, there were concerns of delayed presentations due to fears of contacting Covid-19. Towards addressing this, virtual asthma clinics were started, running seven days a week to support children with asthma and their families. **Objectives** The objective was to learn from the pandemic dataset and take the lessons moving forward.

Methods We analysed the data of PED attendances and admissions with asthma/VIW in 2020, extracted from the electronic database and compared it with similar data from 2019.

Results There was an unprecedented reduction in PED attendances for children with asthma and VIW from the time of the first lockdown in March 2020 to August 2020 (45% reduction in March 2020 compared to the previous year, 91% reduction from April to July 2020 compared to the previous year). There was a 80 -90% reduction in admissions for asthma/VIW during this time period and fewer severe asthma presentations. Factors like lockdown, closure of schools and hand washing were probably the main contributors in interrupting the chain of transmission of not only COVID-19 but other viruses too. Anecdotal evidence from clinicians who led the virtual asthma clinics reported improved engagement and compliance with preventers especially from repeat attenders and teenagers who previously had shown poor compliance. Change in patient and parent specific behaviour due to fears of contracting COVID-19 contributed to better self-management of paediatric asthma.

However a seasonal spike in asthma attacks which is common in September (the 'September epidemic') did happen in 2020 as children returned to school. There was a 45 - 55% reduction in attendances in October and November 2020. With the announcement of the second lockdown in December asthma/VIW attendances dropped by 84–91% from December to February 2020, a dramatic decline. Prevalence of COVID - 19 or endemic winter viruses did not seem to contribute to attendances or admissions for children with asthma and VIW.

Conclusions This COVID-19 pandemic has shown us a snapshot of how childhood asthma can be managed in a different way. Identifying the patterns of change is important for the future as this experience can be used to promote integrated care for children with asthma and VIW. The emerging concept of telemedicine has also contributed significantly. An existing strategy of engaging children and families who present to PED with an acute exacerbation of asthma to raise education and awareness was already present in this trust since 2019. Learning from the pandemic experience, we think that media exposure and health care pathways could provide the right information and guidance to families of children with asthma/VIW.

British Paediatric Allergy Immunity and Infection Group

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RESIDENT MEMORY AIRWAY T CELLS PROTECT AGAINST RSV INFECTION IN THE ABSENCE OF ANTIBODY

¹Ekaterina Kinnear, ²Laura Lambert, ³Jacqueline McDonald, ¹Hannah Cheeseman, ⁴Lisa Caproni, ¹John Tregoning. ¹Imperial College London; ²Imperial; ³NIBSC; ⁴Touchlight Genetics

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Background Tissue resident memory T (Trm) cells act as sentinels and early responders to infection. (RSV)-specific Trm cells have been detected in the lungs after human RSV infection, but their role is unknown. To dissect the protective function of Trm cells, mice were infected with RSV; infected mice developed antigen-specific CD8⁺ Trm cells in the lungs and airways. Intranasally transferring cells from the airways of previously infected animals to naïve animals reduced weight loss on infection in the recipient mice. Transfer of airway CD8 cells led to reduced disease and viral load in recipient mice. Because DNA vaccines induce a systemic T-cell response, we compared vaccination with infection. Intramuscular DNA immunization induced RSV-specific CD8 T cells, but they were not protective. Infection but not immunization induced antigen-specific Trm cells in a range of tissues. These findings demonstrate a protective role for airway CD8 against RSV and support the need for vaccines to induce antigen-specific airway cells.

Objectives In this study the role of airway resident memory T cells (Trm) in protection against RSV infection was examined.

It was hypothesised that since Trms are present at the site of infection and can act as sentinels, their induction would lead to rapid pathogen clearance.

Methods Antigen specific Trm cells (CD69+CD103+) were characterized in the lungs and other tissues of mice after infection or vaccination.

For vaccination, DNA was delivered intramuscularly in a prime-boost-boost regimen separated by two weeks.

To dissect the protective function of Trm, cells were obtained by bronchoalveolar lavage from RSV experienced mice, sorted and transferred intranasally into naïve animals prior to intranasal challenge a day later with RSV.

Results 1. Prior RSV infection protects against subsequent infection and induces both RSV specific antibody and CD8 T cells. Naïve or previously RSV infected mice were infected with RSV intranasally, weight was measured daily. Viral load was measured on day 4 after infection. Anti-RSV antibody responses were measured on day 7 after infection.

2. Airway cells, not splenocytes from RSV experienced mice can protect from disease in the absence of antibody. Mice received cells from airways and spleens of RSV exposed or PBS exposed mice intranasally prior to infection with RSV. Viral load was measured on day 7.

3. Immunisation and infection induce different antigen specific T cell populations in different tissues. Mice were either vaccinated with RSV DNA vaccine or intranasally infected with RSV. After 8 weeks all mice were sacrificed. The left and right flank skin and muscle, blood, spleen, airway and lung cells were analysed. RSV specific CD8⁺ T cells and proportion of Trm were assessed.

Conclusions RSV infection leads to CD8⁺ Trm formation in the lungs and the airways of mice.

Intra-airway cell transfer of RSV experienced CD4 or CD8 cells to naïve animals protects from disease upon challenge in the absence of antibodies.

RSV infection leads to dissemination of RSV specific CD8⁺ Trm cells however this is not reproduced by IM vaccination.

Localised delivery of vaccines to the lungs may be needed to generate formation of Trm in the airways.