Title  “Complacency could lead to a fatality.” A cross sectional survey of food allergy practices within education establishments across West of Scotland.

Presented by  Rebecca Totterdell

Background

Education establishments are areas of risk for anaphylaxis, where poorly designed policies can significantly affect patient and carer quality of life. Aims: The aim of this study was to evaluate the preparedness level of schools for managing pupils with food allergy.

Methods

The ‘School Allergy Care - Preparing for food allergies’ survey (SacPFA) was distributed to schools in the West of Scotland between Dec 2019 and Jun 2020. Preparedness was evaluated by scoring the perception of preparedness (internal evaluation), and adherence to local and European guidelines (external evaluation).

Results

The survey was returned by 173 schools (response rate 25%). The majority (n=114, 70%) had pupils with a prescribed adrenaline autoinjector (AAI) enrolled. Less than 20% of schools had enacted an allergy management policy (AMP) (n=33, 19.1%/173) and just 27% had personalised allergy action plans (PAAP) for affected pupils (n=44/163). Further, 14.5% (n=25) kept spare back-up AAIs and 46% (n=52/114) stored AAIs in a locked space. Schools rated their perceived preparedness highly (mean: 84.3%), yet the average external preparedness score was 53.5%, and just 12.7% of schools (n=22) were categorised as ‘equipped and ready’ (score >75%). Schools with experience managing anaphylaxis were more likely to rate themselves completely prepared for emergencies (p=0.003), and to have an AMP (p=0.005) and PAAPs (p=0.049) in place. Schools supported a need for a standardised national policy (92%) and further training (92%).

Conclusions

The survey results demonstrate an inconsistent level of care for pupils with food allergy across the region, reinforcing the inequality and risk (both physical and emotional) facing those who attend schools with a low preparedness score. Family advocacy and school experience promote implementation and adherence of preventative measures, rather than current legislation. Altogether, this makes a strong case for a national allergy strategy to ensure schools receive the right level of support.
An Investigation Into Steroid-Related Neurotoxicity In Paediatric Acute Lymphoblastic Leukaemia: A Subtype Of Central Neurotoxicity Related To Therapy

Presented by Gemma Swann

Background

This study investigates steroid-related neurotoxicity (SRNT), its impact on paediatric acute lymphoblastic leukaemia (ALL) patients, and how it differs from other neurotoxicities experienced during ALL therapy.

Aims

To identify the demographic and clinical features of those who experienced SRNT. To determine the clinical patterns of SRNT, and its impact on planned ALL treatment and patient outcomes. To determine how the demographic and clinical features of those experiencing SRNT differ from those experiencing other neurotoxicities.

Methods

From 1,813 patients in the international Ponte di Legno (PdL) consortium neurotoxicity group, a subgroup of 106 individuals with severe SRNT was created. The data was compared to the other PdL neurotoxicities (minus the SRNT cases), and Chi-squared test for association and univariate binary logistic regression analyses were carried out.

Results and Discussion

A large variety of symptoms were experienced. The median age of the cohort was 6.9 years (IQR 3.2-13.3). Steroids were continued as planned in 68% of cases. Medication was required for management in 88%, and 15% were hospitalised. 83% of the cohort were alive at follow-up, 4% were dead, and 13% were lost to follow-up. Binary logistic regression analysis found that age of less than 10 years and the AIEOP study group were significantly associated with increased risk of SRNT. Conversely, the NOPHO study group was significantly associated with a decreased risk of SRNT.

Conclusions

As hypothesised, the patients who experienced SRNT during ALL treatment had a distinct biological and clinical phenotype to those with other neurotoxicities. Age less than 10 years and the study group AIEOP increased the risk of SRNT. The NOPHO study group decreased risk. SRNT impacted planned ALL treatment and patient outcomes. There is much scope for additional research in this area, particularly regarding specific treatment protocols and how they alter the risk of SRNT.
Salivary sex steroids as markers of puberty in boys during late childhood and adolescence

Presented by Supitcha Patjamontri

Background

Salivary androgens represent a non-invasive marker of puberty that may have utility in population studies and in the clinical arena. Objectives: To establish normal reference values of salivary androgens using LC-MS/MS and demonstrate the correlations between salivary androgens and pubertal development in boys.

Methods

School-based adolescent cohort study with two time points for collecting saliva samples two years apart. Five androgens (Testosterone; T, androstenedione; A4, 17-hydroxyprogesterone; 17-OHP, 11-ketotestosterone; 11-KT and 11β-hydroxyandrostenedione; 11OHA4) were analyzed in saliva samples using LC-MS/MS. Self-reported assessment of puberty through the Pubertal Development Scale (PDS) was also collected at both time points. Receiver-operating characteristic (ROC) curves were used to determine the areas under the curves, of each androgen as a predictor of self-reported voice maturation.

Results

A total of 1,166 saliva samples were available from 929 boys aged between 11-16 years at either baseline or follow up or both time points with the median age of 12.3 yrs (range 11.3-13.2) and 14.3 yrs (range 13.4-15.8) at baseline and follow up time point, respectively. Median salivary T increased from 7 pmol/L (10th, 90th centile, 5, 41) in participants aged 11-12 yrs to 122 pmol/L (21.6, 267.4) in participants aged 15-16 yrs. In a subgroup analysis of 147 saliva samples that were collected within 90 days before or after PDS, salivary T and A4 concentrations showed the highest correspondence with self-reported voice-breaking (One-way ANOVA p<0.005). ROC curve analysis showed that a salivary testosterone of 84.2 pmol/L and a salivary A4 of 106.9 pmol/L provided a sensitivity of 76% and 71%, respectively and a specificity of 74% and 74%, respectively to predict significant voice changes. Salivary T concentrations revealed the highest linear correlation with salivary A4 (r= 0.75; p < 0.01).

Conclusions

In boys aged 11-16 yrs, salivary T and A4 represent valid non-invasive biomarkers of puberty in population studies.
Title: Exploring the Underlying Aetiology and Clinical Follow-Up of Elevated Creatine Kinase in Children: Review of Paediatric Rhabdomyolysis in West of Scotland

Presented by: Fiona McQuaige

Background

Rhabdomyolysis (RM) is a potentially life-threatening disorder characterised by myocyte destruction marked by release of creatine kinase (CK). Episodes of RM have wide range of causes, however, for selected cases underlying genetic predispositions should be considered.

Aim

To identify and characterise cases of childhood rhabdomyolysis to improve clinical care standards. Methods Retrospective study of cases presenting with CK >1000U/L aged <18 years during 2017-2020.

Results

Results are expressed in median (range). Results A total of 500 samples from 158 cases aged 8.6 years (0, 15.9) with samples per case of 2 (1, 25) were identified. Maximum CK for cases was 2270U/L (1005, 799433). Samples originated from PICU 36.7% (58/158), A&E 17.7% (28/158), outpatient 17.1% (27/158), inpatient wards 13.9% (22/158), neonatal unit 8.2% (13/158), ambulatory unit 5.1% (8/158), psychiatry unit 1.0% (1/158), and GP 1.0% (1/158). Muscular dystrophy (MD) was found in 19.0% (30/158). Of these, seven were new diagnosis of Duchenne MD (DMD), two Becker MD, two congenital MD, two DMD carriers, and other 16 were known DMD. Other elevated CK were seen with myocardial injury 18.4% (29/158), sepsis 7.6% (12/158), surgery 6.9% (11/158), ingestion 6.3% (10/158) seizure 6.3% (10/158), status dystonicus 5.7% (9/158), trauma 5.7% (9/158), autoimmune disorders 4.4% (7/158), and neuroleptics 1.3% (2/158). Endocrinopathies or metabolic causes were suspected in 5.7% (9/158). Of these, one was diagnosed with glycogen storage disorder and another with very-long-chain acyl-coA dehydrogenase deficiency. Cause remained unidentified in 12.6% (20/158) in previously well individuals. Of these twenty, only 7 had normalised CK on follow-up, and 7 had no repeat levels despite CK of 1734.5U/L (1070, 14431). Of the 13 cases with persistently elevated CK, none had neuro-metabolic or genetic consultations.

Conclusion

This study highlights the need for development of rhabdomyolysis investigation pathway to ensure appropriate follow-up and consideration of underlying genetic predispositions
Obesity and dental caries in children in Scotland: population-based data linkage analysis

Presented by Ryan Stewart, Postgraduate Research Student

Background

Childhood dental caries and obesity are public health challenges both globally and locally in Scotland. Both conditions, which are among the first observable outcomes of poor health, share socioeconomic determinants that underpin large inequalities. The extent to which both conditions co-exist in Scotland and if they are more common in areas of higher deprivation is unclear.

Aims

To assess trends and socioeconomic inequalities in co-existing childhood caries and obesity in Scotland. Methods: We have used population-level repeated cross-sectional data linkage and secondary analysis of pseudonymised, individual-level National Health Service data on caries experience and obesity of 5-year-old children in Scotland between 2011/12 and 2017/18 (n=335,361) and a measure of area-based deprivation (Scottish Index of Multiple Deprivation) from the child’s home postcode. Data were analysed within the National Safe Haven.

Results

Caries experience prevalence in 5-year-olds reduced from 32.9% (2011/12) to 29.5% (2017/18), although absolute inequalities remained consistently large. The difference in prevalence between the most and least deprived was 37.5% in 2011/12 and 34.1% in 2017/18. The prevalence of obesity has plateaued (9.8% 2011/12;10.1% 2017/18), however, this has masked a small but steady rise in the most deprived areas (11.9% 2011/12;13.5% 2017/18). Between 2011/12 and 2017/18, 3.4% (n=11,494) children experienced caries and obesity simultaneously. In children from the 20% most deprived areas, 5.6% (n=4,350) had co-existing conditions versus 1.4% (n=887) in the 20% least deprived areas (Adjusted Risk Ratio=6.0; 95% Confidence Interval=[5.6, 6.4]).

Conclusions

In Scotland, recent improvements in caries experience have been attributed to the Childsmile programme, however, inequalities remain stubbornly wide. Over the same period inequalities are increasing in the prevalence of obesity. Despite relatively low prevalence of co-existing caries and obesity, inequalities are stark and persistent and more targeted interventions that focus on the common risk factors are needed to support this particularly disadvantaged group.
Background

Children are relatively unaffected by COVID-19 with a large proportion who are positive remaining asymptomatic. Studies based on molecular testing of oral/nasal swabs underestimate SARS-CoV-2 due to test sensitivity, timing and selection bias.

Aims

Assess the seroprevalence of SARS-CoV-2 antibodies in healthy children within the Glasgow cohort of patients as part of a larger multicentre observational study.

Methods

Children of healthcare workers 2-15 years had bloods performed, using 3 methods – Abbott, Roche and DiaSorin at 0, 8 weeks and 4-6 months. Age, sex and evidence of suspected or proven exposure to coronavirus were also collected.

Results

229 were screened, 227 enrolled and 3 excluded. 224 participants were included in the final analysis. Approximately 50:50 split of sexes, median age 11 years with an IQR of 8-14 years. Glasgow cohort demonstrated 10.6% seropositivity for SARS-CoV2 antibodies. In positive participants 42% <10 years-old, 58% >10 years-old. 79% were positive at study outset, 2 children (8%) became positive between rounds 1 and 2. 3 children (13%) became positive between round 2 and 3. 58% (14/24) were asymptomatic. 7/10 (70%) of positive, symptomatic participants had at least one of the three core symptoms.

Discussion

No significant difference in antibody levels between symptomatic and asymptomatic of COVID-19. Majority who had true positive antibodies levels at round 1, still had presence of antibodies at 6 months. Trend demonstrated reduction in titre level over time, although Roche antibody levels peaked at round 2. Glasgow was part of only study worldwide looking at antibody persistence in children. 10.6% of the study population had antibodies present. We are unsure of the impact of antibodies as they only demonstrate exposure. The majority were positive before public health measures were in place. Positivity wasn’t age specific and levels remained positive 6 months after study commencement, however titres reduced over time.