Departments of Endocrinology, Pathology and Surgery at the main children's hospitals.

Results Fifteen cases of gonadoblastoma were identified, all except one phenotypically female. Fourteen patients had prophylactic gonadectomy and one presented with an ovarian mass and raised tumour markers. Eight had TMSY (age at gonadectomy 2 weeks – 14 years). Seven were phenotypically female and one was male. Seven cases of 46 XY GD (all female phenotype) were diagnosed with gonadoblastoma with an age range of 4 months – 15 years at time of surgery. Four of these were unilateral. In the remaining three cases, one patient had bilateral gonadoblastoma, one had unilateral dysgerminoma and contralateral gonadoblastoma and the third had bilateral dysgerminoma with features of gonadoblastoma.

Conclusions This is the first reported population incidence rate of GB in children with a 20 year incidence of gonadoblastoma in the Republic of Ireland of 1/100,000 live births. The data supports the recommendation for elective gonadectomy in high risk conditions. Due to the wide age range in presentations, however, the timing of gonadectomy should be individualised, based on underlying diagnosis and following multidisciplinary team discussion. The true rate of malignant transformation in early onset GB remains to be studied.

OC48

RE-INTERROGATION OF WHOLE EXOME SEQUENCING DATA IN DEVELOPMENTAL EPILEPTIC ENCEPHALOPATHIES

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Introduction The severe epilepsies of infancy and childhood are a heterogeneous group of severe epilepsies characterised by several seizure types, where the epileptic activity in addition to the seizures contributes to cognitive impairment or regression. They account for a significant proportion of the refractory epilepsies and are usually associated with poor outcome.¹ The term developmental epileptic encephalopathies (DEE) is now the preferred term for this group of children. It may be the result of a specific congenital or acquired structural brain lesions, metabolic disorders, chromosomal abnormalities, copy number variants or single-gene defects.

Next-generation sequencing (NGS) includes gene panels, whole-exome sequencing (WES) and whole-genome sequencing. The reported rates of diagnosis in DEE using NGS technology ranges from 10–100%. We previously reported a cohort of 50 patients who underwent single research WES for investigations of DEE. The yield at the time of publication was 22% (11 known epilepsy gene, 1 candidate gene).² 38 patients remained undiagnosed. Since then, the number of new genes reported with DEE continues to expand and the technology improved to aid interpretation of variants. Therefore, we reanalysed WES data, with the addition of parental samples for trio analysis, to enable data interpretation and identification of pathogenic disease-causing variants.

Methods Re-analysis of WES data, single (proband only) or trio (proband and parents)WES, if parental samples were available.

Results We identified a genetic cause in 25 individuals in the cohort; 22 pathogenic variants in DEE genes, 3 candidate genes, increasing the diagnostic yield to 50%. With re-analysis, we identified 10 pathogenic variants (*CDKL5*, *KCNA2*, *NRXN1*, *PRODH*, *RELN*, *RHOBTB2*, *SCN1A*, *SLC1A4*, *SMC1A*), 1 candidate gene (*NAPB*) and 1 variant of uncertain significance (*GRIN2A*). A number of genes had not been identified at the time of initial analysis, including *RHOBTB2*, *SLC1A4*, *SMC1A*. Two mosaic variants in *CDKL5* and *SCN1A* were identified with trio WES analysis and reducing read depth filter to 15, previously set at 20.

Discussion This study highlights the importance of the re-interrogation of WES data for newly discovered genes. Trio WES had a higher diagnostic yield (50% compared to 22%) in keeping with previous studies. Trio WES is effective for the identification of *de novo* variants and aids in the interpretation of variants. Reducing read depth filter can aid the identification of mosaic variants, increasing reported to be important in DEE.

OC49

NON-ALCOHOLIC FATTY LIVER DISEASE IN OBESE AND OVERWEIGHT IRANIAN CHILDREN: A CROSS SECTIONAL STUDY

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Background Non-Alcoholic Fatty Liver Disease (NAFLD), the main cause of childhood liver abnormalities, is rising with the increase of pediatric obesity and overweight. This study aimed to investigate the prevalence of NAFLD and its predisposing factors in children of Urmia province, northwest of Iran.

Methods In this cross-sectional study, 508 overweight and obese children (251 boys) aged 6–19 years were recruited by convenience sample from the Shahid Motahari Hospital during 2016–2017. The anthropometric and laboratory measurement and abdominal ultrasonography for liver echogenicity and size were conducted. A questionnaire was also used to obtain information on demographical characteristic and alcohol consumption. Eligibility criteria were: (1) 6 ≤ age ≤ 19 years; (2) BMI > 85th percentile for gender and age (3) absence of any drug toxicity; (5) abstinence from alcohol; (6) absence of hepatitis B, C and Wilson's disease. Fatty liver was diagnosed by ultrasonography using standard criteria. Serum Alanine aminotransferase (ALT), Aspartate aminotransferase (AST), Alkaline Phosphate (ALK), Triglyceride (TG), Cholesterol (Chol), Low density lipoprotein (LDL) -cholesterol, High density lipoprotein (HDL)-cholesterol, Thyroid stimulating hormone (TSH) and glucose, were measured in children blood samples using standard laboratory methods. Insulin resistance was estimated using the homeostasis model assessment of the insulin resistance (HOMA-IR). Univariable and multivariable logistic regression and 95% confidence interval was used to evaluate predictors of NAFLD.