Vitamin D Surveillance in Children with Down’s Syndrome in a Regional Disability Service in Dublin

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Aims Down Syndrome (DS) is the most prevalent chromosomal abnormality in Ireland at 20.70 per 10,000 live births. Children with DS are at higher risk of bone health comorbidities. Severe vitamin D deficiency results in reduced calcium absorption which can manifest as nutritional rickets, hypocalcemia and growth disturbance in the paediatric population. Currently there are no international guidelines for the surveillance of Vitamin D deficiency in DS. The aim of this study was to examine Vitamin D status in a cohort of children with DS attending a Dublin disability service. The research population were all children with DS who have lived in a defined geographical location between 2002 -2020. A secondary aim was to provide evidence to inform practice for the optimisation of Vitamin D surveillance in DS.

Methods A retrospective cohort study on all children with DS attending a large disability service in Dublin (2002-2020). Ethical approval was obtained. The data was extracted from the medical notes and cross referenced with laboratory results. Collected data included: All vitamin D levels recorded in (nmol/L), ethnicity, gender, date of first check, month of the year, calcium, phosphate and parathyroid hormone levels. We classified a Vitamin D level of <50nmol/L as insufficient and a level <30 as deficient.

Results A total of 102 patients with DS were identified in the cohort. 60% of the patients were male (n=62). 17% of children in the cohort had a Vitamin D level recorded<50nmol/L (n=18) and 5% had a level<30nmol/L (n=6). Of those deficient/insufficient 25% were female (n=6) and 75% male (n=18). The difference between genders was not found to be statistically significant. In the 0-10 group 12% (n=7) had a level < 50nmol/L and 2% had level <30nmol/L (n=1). In the 10-20 group 25% had level <50nmol/L (n=11) and 11% had level <30nmol/L (n=5). The differences between the two groups in both <50 and <30 category were not statistically significant p=0.1893 and p= 0.3786 respectively. Of the children with Vitamin D< 50nmol/L, 48% (n=12) were recorded in Winter (December –February).Calcium levels were within normal range in all patients. Phosphate levels were low in 2% (n=3) and one of these was linked with insufficient vitamin D levels.

Conclusion Adequate guidance for Vitamin D surveillance in DS is lacking. There were a significant number of children in our cohort identified as deficient. The need for a standardised protocol for the surveillance of Vitamin D in DS was identified and will be re- audited when in place.

REFERENCES

George Still Forum – National Paediatric ADHD Network Group

ADHD in Down’s Syndrome- A Scoping Exercise

Senerath Perera, Deepika Katangodage. Essex Partnership University Trust

Aims 1. Literature survey on ADHD in Down’s syndrome.
2. To evaluate the prevalence of Attention Deficit hyperactivity Disorder (ADHD ) and Autism in Down’s Syndrome using Light House Child development center Down’s Syndrome data base.
3. Describe the clinical presentation and comorbidity of the ADHD children with Down’s syndrome in the clinic setting.

Methods 1. Literature Survey on Down’s Syndrome was done using the terms’ ADHD/OR ‘attention deficit hyperactivity disorder’/Or ‘ Attention Deficit Disorder with Hyperactivity’/, ‘autism Spectrum Disorder/or ‘autism or ASD or ‘Autistic Disorder’ or ‘asperger’ and ‘down’s Syndrome’/’down” syndrome or ‘trisomy 21’ in Medline, EMBASE and Psychnfo. only English Language articles since 2017 were reviewed.
2. The Down’s Syndrome data base at the Light House Child Development center was searched for Children and young people (upper limit of the age was 25 years) with a diagnosis of ADHD and Or Autism. Their clinical presentations and comorbidity were noted.

Results 1. Literature survey - identified 23 articles in PsycINFO .171 articles in EMBASE (humans) and 51 articles in Medline. 55 articles were used for this focused review. we aim to present the findings at the meetings.
2. The Down’s syndrome data base interrogation revealed that out of the 80 children and young people, aged 25 or younger, 15 were under 5 years of age and excluded from the study. records of one child who moved out of the area was not available.