

SHOULD CHILDREN WITH COELIAC DISEASE BE SCREENED FOR TYPE 1 DIABETES MELLITUS IN ANNUAL BLOODS? AN AUDIT OF FOUR YEARS SCREENING ACROSS FOUR PAEDIATRIC CENTRES IN ENGLAND.

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INTRODUCTION

- The genetic association of Coeliac Disease (CD) and Type 1 Diabetes Mellitus (T1DM) is well known.
- Children with T1DM are routinely screened for CD in England, however there is no NICE guidance on annual screening for T1DM in the CD guideline¹
- The incidence of children with CD on gluten free diet (GFD) developing T1DM appears to be small².
- The value of screening for T1DM in CD patients is thus not known. There is also a question as to whether HbA1c is regarded as a good screening test for T1DM.

METHODS

- A 4 year retrospective review was conducted of a case series of children with known CD attending outpatient clinic across 4 centres.
- Patients were diagnosed as per ESPGHAN guidelines.
- In these centres HbA1c is tested as part of the CD annual review to detect impairment of glucose metabolism (> 41mmol/mol).
- Abnormal HbA1c was documented in patients with CD

RESULTS

- 345 children with CD who had HbA1c screening were identified.

- Children with T1DM diagnosed prior to developing CD were excluded from analysis.
- Six of the 345 patients (1.7%) were identified with an abnormal HbA1c.
- Only 2/6 were confirmed as having T1DM (1 within 4 months of diagnosis) – 0.6% of all children with CD.
- 2/6 had subsequent normal glucose tolerance tests
- 1 patient had Turner's syndrome and was taking growth hormone, which has an impact on glucose metabolism and so was excluded from analysis
- 1 patient is undergoing further investigations for Type 2 Diabetes Mellitus (high BMI).

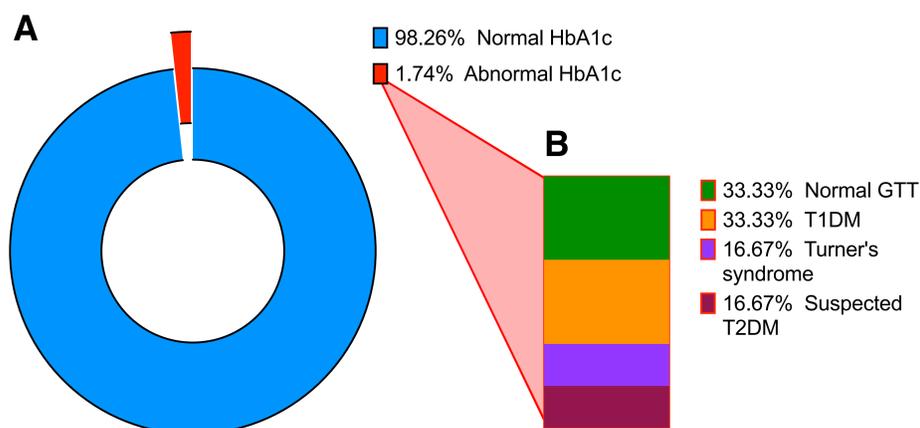


Figure 1. HbA1c results in children with CD

A) Proportion of CD patients with normal and abnormal HbA1c; B) Further breakdown of patients with abnormal HbA1c.

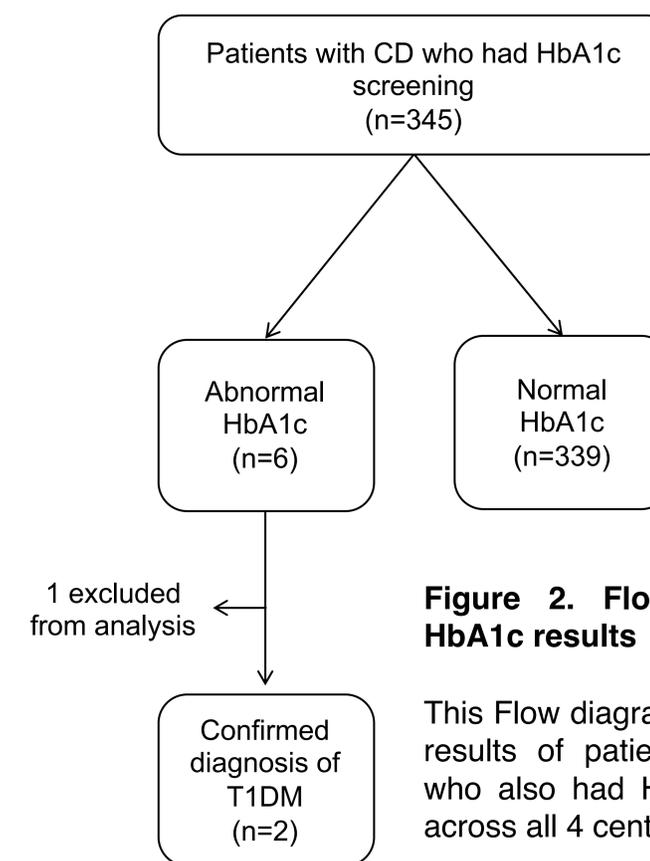


Figure 2. Flow chart of HbA1c results

This Flow diagram shows the results of patients with CD who also had HbA1c tested across all 4 centres.

CONCLUSION

The findings confirm the conclusion of previous studies that showed that a new diagnosis of T1DM (0.6%) in known CD children is uncommon. The annual screening for T1DM in children with CD who have developed impaired glucose tolerance is questionable. There is no standard screening test for T1DM, and HbA1c as a screening test for T1DM is also not routinely used. The exact mechanism for expressing coexisting autoantigens that generate both autoimmune conditions is poorly understood, and it is not clear whether the GFD in CD plays a role.

References:

1. National Institute of Health and Care Excellence (NICE) (2020) 'Management of children and young people with type 1 diabetes'. Available at: <https://cks.nice.org.uk/topics/diabetes-type-1/management/management-children-young-people/>
2. Ludvigsson JF et al 'Celiac disease and the risk of subsequent type 1 diabetes'. Diabetes Care 29:2483-2488, 2006