

# Children with type 1 diabetes (T1DM) and coeliac disease (CD) at Nottingham Children's Hospital – a service review and evaluation

Ashcroft, J., Avery, A., Sachdev, P.,  
Nottingham Children's Hospital, Nottingham University Hospitals NHS Trust

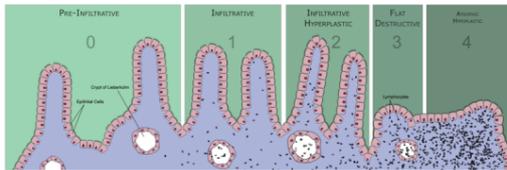
## Background:

The prevalence of coeliac disease (CD) in Type 1 diabetes (T1DM) is estimated as 4.4-11.1% versus 0.5 % in the general population.

Compliance to gluten free diet (GFD) in symptomatic patients versus those diagnosed on screening is significantly higher as expected. There is inconclusive evidence, as to the benefits GFD in T1DM-CD.

The impact of untreated CD on patients with T1DM ranges from malabsorption and frequent unexplained hypoglycaemia to no symptoms.

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## Aims:

To describe the demographics of our children with coeliac disease

To review compliance with GFD and to compare glycaemic control and growth one year before and after diagnosis of CD to control group.

## Results:

Total of 20 patients with T1DM-CD (5.26%) 5 males  
Average age at diagnosis 7.8 years (range 3 -14.8)

Only 9 patients were symptomatic at diagnosis (iron deficiency, gastrointestinal symptoms), others were picked up through screening annually or at diagnosis

95% had duodenal biopsy, 100% had EMA and TTGs checked  
89% had been seen by gastroenterology dietitian  
63% of patients compliant with GFD  
56% of patients had CD discussed in diabetes clinic in the last year

### Comparison of patients with T1DM-CD to patients with T1DM alone (control group)

Between the two patient groups there was a significant difference in height (0.01), weight (0.04) and HbA1c (0.004) (all lower in CD group) 1 year pre-diagnosis – demonstrating the impact of undiagnosed CD HOWEVER

There was no sig. difference between both groups for height, BMI SDS and HBA1c 1 year post diagnosis.

### Analysis of T1DM-CD GFD compliant patients pre and post diagnosis

There was a significant increase in HBA1c 1 one year post diagnosis in those T1DM-CD compliant with GFD, perhaps reflecting lower incidence of hypoglycaemia.

## Methods:

Demographic details at diagnosis of CD and 1 year pre and post were retrospectively extracted from the diabetes database (DIAMOND).

A comparison was made between HbA1c, height SDS and BMI SDS at diagnosis and at 1 year pre and post diagnosis to identify if the compliance with GFD was a predictor for this.

Control group was used - T1DM without coeliac disease ( duration of diabetes, age and sex matched)

## Conclusion:

CD prevalence in our cohort is similar to the literature

There was better compliance with GFD in our cohort than what the literature suggested

We complied with national recommendations, however from this evaluation we are devising further tools and T1DM-CD specific resources

	1 year before CD diagnosis	1 year after CD diagnosis	P value
Height SDS	-0.325	-0.303	0.959 (NS)
BMI SDS	0.24925	0.436	0.604 (NS)
HBA1c	55.2	63.75	0.024 (S)

Table 1: Comparison of Ht, BMI and HbA1c 1 year pre and post diagnosis in those T1DM-CD compliant with GFD

## References

- American Gastroenterology Association (AGA) (2006) Institute medical position statement on the diagnosis and management of coeliac disease Gastroenterology 131 (6): 1977-980
- National Institute for Health and Care Excellence (NICE) (2009) Coeliac Disease (CG86) May 2009
- Hill, I.D., Dirks, M.H., Liptak, G.S., et al., (2005) Guideline for the diagnosis and treatment of coeliac disease in children: recommendations of the North American Society for Pediatric Gastroenterology, Hepatology and Nutrition Journal of Pediatric Gastroenterology, Hepatology and Nutrition 40(1): 1-19
- Kordonouri, O., Maguire, A.M., Knip, M., et al., (2007) ISPAD Clinical practice consensus guidelines 2006-2007. Other complications and associated conditions Paediatric Diabetes 8(3): 171-176