

Higher glycaemic response in children after eating British breakfast cereals compared to European breakfasts

Wrightington, Wigan and Leigh NHS Foundation Trust

Dr E.Keeler^a, Dr Mark Robinson, Janine Sweetingham

Introduction

Type 1 diabetes is the third most common childhood disease, and represents a huge health care burden¹. Post-prandial glucose levels and the effect that this has on diabetic control and long term outcomes, has become a key area of research.²⁻⁴ Studies argue that it is post prandial blood glucose levels, rather than fasting blood glucose levels, that contribute most to HbA1c levels and micro vascular changes in later life³. We noticed that children appeared to have better blood glucose control in the mornings after a continental breakfast compared to a British cereal.

Hypothesis

Glycaemic control throughout the morning is influenced by the type of breakfast eaten in the paediatric population. We hypothesized that blood glucose levels will remain more stable after eating a continental breakfast compared to a standard British breakfast cereal.

Method

Children were eligible to participate if they were between the ages of 5 and 18, had type 1 diabetes, and did not suffer from any food allergies such as lactose intolerance or coeliac disease. 11 type 1 diabetic patients completed the study. Each patient was given a pack which contained pre-weighed food for both the British breakfast and the continental breakfast, as well as a new blood glucose meter. The children were instructed to eat their continental breakfast at home on day 1, and their British breakfast on day 2. After eating the breakfast, they were asked to record their blood sugars every 30 minutes until lunch.

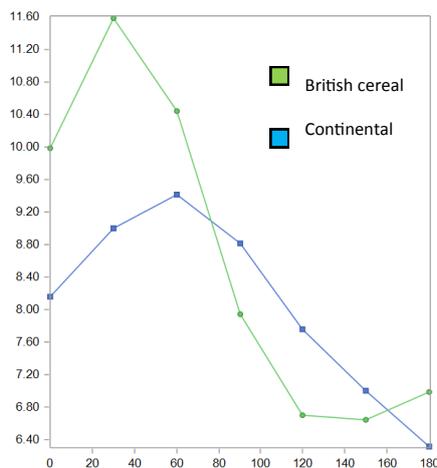
Results

The peak in blood sugar values 30 minutes after breakfast is significantly lower after a continental breakfast compared to a British breakfast cereal. The fall in blood sugar values from baseline is then significantly less 2 hours after eating the continental breakfast. **Table 1** shows the P values after statistical analysis for blood sugar values over time.

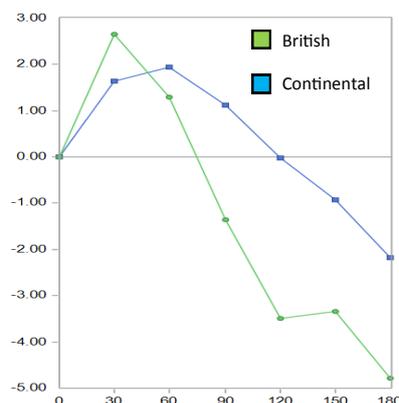
Table 1

Data analyzed	P value	CI
Mean	0.333	-1.83 to 0.73
0 minutes	0.063	-3.78 to 0.128
30 minutes	0.0085	-4.359 to -0.8
60 minutes	0.308	-3.13 to 1.0
90 minutes	0.340	-1.04 to 2.75
120 minutes	0.265	-1.3 to 4.21
150 minutes	0.587	-2.08 to 3.46
180 minutes	0.943	-3.55 to 3.35

This was also analysed graphically;



Graph 1- A graph to compare the mean blood sugar values against time after the British breakfast cereal and the continental breakfast. X axis- time in minutes, Y axis- blood glucose reading



Graph 2- a graph to show the change in blood glucose from baseline over time. X axis- change in blood sugar from baseline Y axis- time in minutes

Discussion

- The results of our study are difficult to interpret due to the limited data that we have obtained.
- From the limited data that we do have, it appears that there is a trend towards more stable blood glucose control after a continental breakfast compared to the British breakfast cereal. Similarly, the fall in blood glucose 2 hours after a continental breakfast is significantly less compared to a British breakfast cereal.
- We struggled with compliance during the study, and a major limitation is that the children were not directly observed eating their breakfasts.
- It was also difficult to ensure children ate nothing else other than breakfast and also that they did not do any exercise or

Recommendations

We will continue to recruit patients for the study in order to improve numbers. We are going to set up a "study day" during school holidays, where children are dropped off in the morning and are given breakfasts by us. Their blood sugars will then be measured by ourselves, thus ensuring greater compliance.

References

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