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TYPE 2 DIABETES IN CHILDREN & YOUNG PEOPLE UNDER THE AGE OF 17 YEARS

(Short Study Name: Type 2 Diabetes)

Abstract

There are two main types of diabetes: Type 1 and Type 2. In both types of diabetes, the patient's blood sugar levels are high because there is not enough insulin, a hormone made by an organ called the pancreas, to keep the blood sugar levels normal. In Type 2 diabetes the pancreas still makes insulin but not enough for the individual's needs as the person does not respond ('resistant') to insulin's normal action. Too much glucose (sugar) is made by the liver and cannot move into the cells of the body (mainly muscle and fat) to be used for making energy. The pancreas has to work harder to make sufficient insulin to get glucose to go into these cells, but eventually gets worn out from this extra effort.

This study will be investigating Type 2 diabetes diagnosed in children and young people up to 17 years of age. Until recently this condition was not seen in children or adolescents, being a condition seen in adults. However there is growing evidence that the increase in childhood obesity has resulted in cases of Type 2 diabetes being recognised (diagnosed) in younger age groups.

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Background

Type 2 diabetes is a condition whereby an individual's blood sugar levels are high because their body cannot produce sufficient insulin to keep the blood sugar levels in the normal range. This type of diabetes is usually seen in adults who are overweight as the excess weight makes insulin work less well. Until recently, Type 2 diabetes was only seen in mature adults. However we are now seeing similar cases in children. Although rare, we believe the number of new cases is increasing. A BPSU study in 2004 funded by Diabetes UK identified 78 new cases (incidence cases) in a year and childhood obesity appeared to be a major association. Since 2004, levels of childhood obesity have continued to increase and we suspect cases of Type 2 diabetes will also be increasing in parallel.

This second BPSU study hopes to ascertain whether the incidence of Type 2 diabetes has increased since the first survey ten years ago, and will re-assess diagnosis and management of this condition in the UK. Our previous survey demonstrated significant concerns regarding associated illness (co-morbidity) screening, care delivery, treatment options and robust outcomes such as weight loss at one year and blood sugar control (glycated haemoglobin) attained. It is hoped that a second survey would see improvements in care from the time of the previous survey.

Coverage

United Kingdom and the Republic of Ireland (ROI).

Duration

April 2015 – April 2016 (13 months surveillance with a 12 month follow-up).

PTO

Research Questions

1) What is the current UK and Republic of Ireland incidence of newly diagnosed Type 2 diabetes in children 0- 16 years inclusive
2) Has the incidence changed since the previous survey ten years ago?
3) How is Type 2 diabetes being diagnosed and managed by paediatricians?
4) What are the 'at diagnosis' and short-term (one year after diagnosis) outcomes and co-morbidities associated with Type 2 diabetes?

Case definition

The American Diabetes Association criteria for diagnosis of diabetes will be used.

Exclusion criteria

• Type 1 diabetes (positive auto-antibodies and/or persisting insulin requirement from diagnosis)
• Maturity Onset Diabetes of the Young (MODY) – suggested by a three generation, family history suggestive of dominantly inherited diabetes with normal weight
• Diabetes developing in a person with known diabetes associated syndrome such as Prader-Willi, Alstrom or Bardet-Biedl syndromes
• A diagnosis of diabetes while on medical therapy with a known diabetogenic medication (e.g., glucocorticoid, L-asparaginase, cyclosporine, tacrolimus, atypical antipsychotic, anticonvulsant)
• Pancreatic failure (such as that after acute pancreatitis or pancreatectomy)

Analytic Case Definition

Any case of confirmed, newly diagnosed Type 2 diabetes using following criteria:
Confirmed by the presence of raised insulin level (>132 pmols/litre or equivalent) or raised C peptide level (>600 pmols/litre)

OR

The patient is managed off insulin therapy for >9 months in the absence of auto-antibodies typical of Type 1 diabetes.

The latter definition is likely to be based on a clinical re-evaluation after diagnosis of diabetes when clinical course suggests a diagnosis other than Type 1 diabetes.

Reporting instructions

Please report any cases of children 0-17 years in the past month presenting with Type 2 diabetes as defined by the case definition.

Methods

Paediatricians and diabetes nurse specialists reporting a case through the BPSU orange card system and posted a clinical questionnaire. Clinical questionnaires are to be completed and returned to the study team.

Funding

NIHR grant through the Rare Disease Translational Research Consortium

Support Group

Diabetes UK

Ethics approval

This study has been approved by NRES Committee South West (REC reference:14/SW/1143; IRAS project ID: 162381) and has been granted Section 251 HRA-CAG permission (CAG reference: 15/CAG/0102))

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