

Microvascular disease in children and young people with diabetes in England and Wales

N Holman¹, F Campbell², N Sattar¹, J Warner³

¹ – Institute of Cardiovascular and Medical Sciences, University of Glasgow, Glasgow, ² – Leeds Teaching Hospital NHS Trust, Leeds, ³ – Children's Hospital for Wales, Cardiff and Vale University Health Board

Aim

The aim of this study is to assess the current prevalence and risk factors for microvascular (kidney and eye) disease in children and young people with diabetes.

Methods

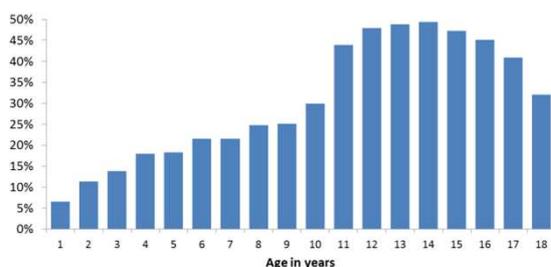
The National Paediatric Diabetes Audit (NPDA) collates data on the demographic characteristics, care processes and outcomes in children and young people with diabetes under the care of paediatric diabetes units. This analysis used data collected in the 2013/14 audit period which includes data from all paediatric units in England and Wales.

Logistic regression models were created to assess the relative association between risk factors and microvascular disease in children and young people with Type 1 diabetes

Results

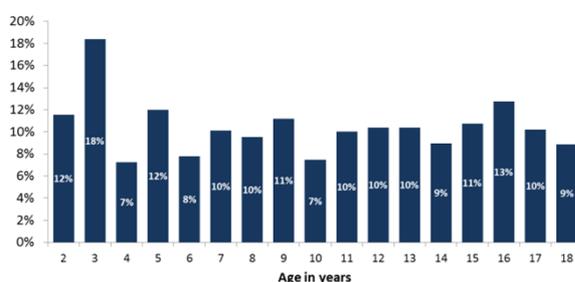
The 2013/14 NPDA included data on 26,598 children and young people with diabetes. Half (48.8%) of all children aged 12 years and older have had an albuminuria measurement in the audit period.

Figure 1: Measurement albuminuria by age (Type 1 diabetes)



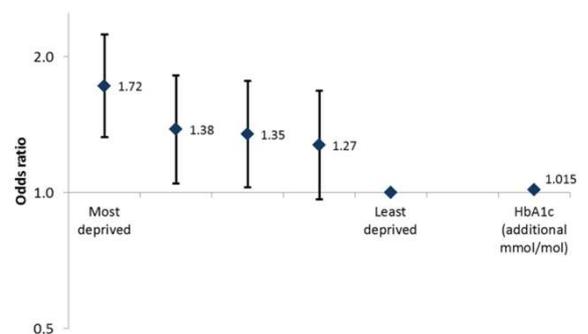
The results of albuminuria measurements was only provided for 67.3% of those reported to have been tested. Overall, 10.2% of children and young people with Type 1 diabetes have micro or macro albuminuria and there is no clear variation by age (see Figure 2). Amongst young people with Type 2 diabetes the prevalence of albuminuria was 21.5%.

Figure 2: Prevalence of albuminuria by age (Type 1 diabetes)



There is a clear deprivation gradient in the risk of albuminuria (see Figure 3). An increase in current HbA1c of 1 mmol/mol is associated with a 1.5% greater risk of having albuminuria. These risk factors outweigh (in statistical terms) the influence of age, duration of diabetes and ethnic group.

Figure 3: Risk factors for micro and macro albuminuria (Type 1 diabetes)



Overall, 49.2% of young people aged 12 years and older were reported to have received eye screening. Of those with outcome data the prevalence of abnormal results was 12.6% for those with Type 1 diabetes and 4.5% for Type 2 diabetes. In those with Type 1 diabetes the risk of having abnormal eye screening result increased by 15.2% per additional year of diabetes, 1.3% per additional mmol/mol of current HbA1c and 6.0% per additional year of age.

Conclusion

The prevalence of microvascular disease in young people with diabetes is high. This has significant implications for the future health of this cohort of young people with diabetes.

The national report for the 2013/14 National Paediatric Diabetes Audit was published on 9th March 2015. This is the first national report to analyse data on microvascular disease. Improvements in data quality are needed to provide a more detailed insight into the pattern of vascular disease in children and young people with diabetes and to create meaningful local data to facilitate quality improvement.

For further information on the National Paediatric Diabetes Audit visit <http://www.rcpch.ac.uk/national-paediatric-diabetes-audit-npda>