

Familial risk of type 1 diabetes among siblings

Clinical question What is the cumulative risk for type 1 diabetes in siblings of patients with childhood-onset diabetes?

Bottom line The cumulative risk of type 1 diabetes up to ages 10, 20, 30, 40 and 50 years in brothers and sisters of patients with childhood-onset diabetes is 1.5 per cent, 4.1 per cent, 5.5 per cent, 6.4 per cent, and 6.9 per cent, respectively. A young age at diagnosis of diabetes in the index case is the strongest predictor of the risk of type 1 diabetes in siblings. The risk in siblings is also increased with increasing maternal and paternal age at birth and male sex.

Synopsis Parents of children with type 1 diabetes often ask what the risk is of their other children developing the disease. These investigators identified the diabetes status of all siblings of all type 1 diabetic patients given a diagnosis before age 18 years in Finland between 1965 and 1979 using the Finnish central population registry with links to a national hospital discharge register, the Finnish diabetes register for children and young adults, and a central drug register. These various registers are practically 100 per cent complete. Of the 10,168 siblings at risk, the data linkage yielded a total of 715 cases of any type of diabetes among siblings,

including 647 with type 1 diabetes, 50 with type 2 diabetes, six with gestational diabetes, and 12 with secondary diabetes (eg, steroid induced). Data on parents were also linked to the various registers. The median age at diagnosis among the siblings was 15.1 years (range = 0.8 to 56 years). The cumulative risk of type 1 diabetes up to ages 10, 20, 30, 40 and 50 years in all siblings was 1.5 per cent (95 per cent confidence interval, 1.3–1.8), 4.1 per cent (3.7–4.4), 5.5 per cent (5.1–5.9), 6.4 per cent (5.9–6.8) and 6.9 per cent (6.4–7.4), respectively. A young age at diagnosis of diabetes in the index case was the strongest predictor of the risk of type 1 diabetes in siblings. The risk in siblings also increased with increasing maternal and paternal age at birth and male sex.

Level of evidence 1b

Reference Harjutsalo V, Podar T, Tuomilehto J. Cumulative incidence of type 1 diabetes in 10,168 siblings of Finnish young-onset type 1 diabetic patients. *Diabetes* 2005;54:563–69.

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