Type 1 diabetes in children with non-Swedish background – epidemiology and clinical outcome

Ulf Söderström

Akademisk avhandling

Avhandling för medicine doktorsexamen i Medicinsk vetenskap mot inriktning Medicin som kommer att försvaras offentligt fredag den 11 april 2014 kl. 13.00, Hörsal C2 (HSC2), Campus USÖ, Örebro universitet/Universitetssjukhuset Örebro

Opponent: Associate Professor Jannet Svensson
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Örebro universitet
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Abstract


Sweden holds third place of diabetes incidence in young people after Finland and Sardinia. One fifth of the population is nowadays of foreign descent. We have a substantial number of immigrants from countries where the risk for T1D is considerably lower. Migration as a natural experiment is a concept to assess the risk for diabetes in offspring of immigrant parents and assess the interaction between genetics (genotype) and the impact of environment (phenotype).

Aims: To study the risk of incurring diabetes for children of immigrant parents living in Sweden (I) and further study the risk if the child is born in Sweden or not (II); to specifically study and evaluate if children from East Africa have increased risk to develop T1D (III). To investigate if clinical and socio-demographic status at T1D onset differs between immigrant children compared to their Swedish indigenous peers (IV). Finally to study the clinical outcome and the impact of socio-demographic factors at diabetes onset after three years of treatment (V).

Methods: All five studies are observational, nationwide and population based, on prospectively collected data. Statistics mainly by logistic and linear regressions.

Results: Parental country of origin is a strong determinant for diabetes in the offspring. Children born to immigrant parents seem to keep their low risk compared to their Swedish peers (I). When adding the factor of being born in Sweden, the pattern changed; there was a significantly (p < 0.001) increased risk for T1D if the child was born in Sweden (II). East Africans have a substantial risk for T1D and especially if the children are born in Sweden (III). Immigrant children and adolescents have worse metabolic start at T1D onset compared to their indigenous Swedish peers (IV). After 3 years of treatment, the immigrant children had a sustained higher median HbA1c, compared to their Swedish peers (V).

Conclusions: Genotype and influences during fetal life or early infancy have an important impact for the risk of T1D pointing towards epigenetics playing a substantial role. Children with an origin in East Africa have a high risk of incurring T1D. Immigrant children have worse metabolic start at T1D onset, which sustains after three years of treatment.

Keywords: Type 1 diabetes, HbA1c, children, adolescents, ethnicity, epidemiology, immigration, adoption, socio-demographic, registers.

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