

Birth weight and childhood onset Type I Diabetes: Population based cohort study

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A study to assess the association between birth weight or gestational age and the risk of Type I Diabetes.

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Reviewed by Dr. Peter Garner, Ottawa Canada

DESIGN

This was a population based cohort study by record linkage of the medical birth registry and the national childhood diabetes registry. The setting being two national registries from Norway.

METHOD

All live births in Norway between 1974 and 1998, which is 1,382,602 individuals contributed a maximum of 15 years of observation. A total of 8,184,994 person years of observation in the period; 1,824 children with Type I Diabetes were diagnosed between 1969 and 1998.

MAIN OUTCOME MEASURES

Estimates of rate ratios with a 95% confidence interval of Type I Diabetes from poisson regression analysis.

RESULTS

The incidence rate of Type I Diabetes increased almost linearly with birth weight. The rate ratio for children with birth weights of 4,500 grams or more, compared with those with birth weights less than 2,000 grams was 2.21 (95% confidence interval 1.24 to 3.94). Test for trend was P equal to 0.0001. There was no significant association between gestational age and Type I Diabetes. The association persisted after adjustment for maternal diabetes and other potential confounders.

CONCLUSION

There is a relatively weak but significant association between birth weight and increased risk of Type I Diabetes consistent over a wide range of birth weight.

COMMENTARY

Results of previous studies on the relation between birth weight and risk of Type I Diabetes have been inconsistent. Thus, by linking two nationwide registries, Stene et al have designed a large cohort study in which all births in Norway over a 25 year period were followed with respect to Type I Diabetes. Their results show a positive association across a wide range of birth weights with an estimated increment in incidences of Type I Diabetes of 1.7% per 100 gram increase in birth weight. This indicates that birth weight may be a rough indicator of some other perinatal factor that is not directly related to the risk of Type I Diabetes. It is not clear whether their observed association is causal or not.

This is the largest study of birth weight and Type I Diabetes published to date, and is the first one to use a cohort design. The trend was highly significant but the increment and risk with increasing birth weight was still relatively low.