Both birth weight and adult lifestyle influence diabetes risk

First study to assess joint effects of early and later life risks for type 2 diabetes

A low birth weight combined with an unhealthy lifestyle in adulthood are jointly related to an increased risk of type 2 diabetes, finds a study published in The BMJ this week.

The researchers say their findings emphasise the importance of adopting a healthy lifestyle to prevent the majority of type 2 diabetes cases in the population.

Diabetes has become a global epidemic, with an estimated 387 million living with diabetes and 4.9 million attributable deaths in 2014. Both unhealthy lifestyles and early life development have been implicated in the rapid rise of type 2 diabetes.

Previous studies suggest that the relation between early life exposures and later life risk of type 2 diabetes may be modified by lifestyle in adulthood. However, very few studies have comprehensively explored their joint effect on diabetes risk.

So a US research team led by Dr. Lu Qi, Associate Professor of Nutrition and Epidemiology at Harvard School of Public Health and Associate Professor at Harvard Medical School, set out to assess the joint association of birth weight and established lifestyle risk factors in adulthood with type 2 diabetes.
Using data from three large ongoing trials, they tracked 149,794 healthy men and women for 20-30 years. Birth weight was recorded and detailed information on lifestyle habits and medical history was collected every two years.

Five lifestyle factors - diet, smoking, physical activity, alcohol consumption, and body mass index (BMI) - were used to calculate an unhealthy lifestyle score.

During follow-up, the team documented 11,709 new cases of type 2 diabetes.

They found consistent associations between low birth weight and risk of type 2 diabetes and between unhealthy lifestyle and risk of type 2 diabetes. They also found a significant interaction between birth weight and unhealthy lifestyle on risk of type 2 diabetes.

The attributable proportions of joint effect were 22% to lower birth weight alone, 59% to unhealthy lifestyle alone, and 17% to their interaction. This means that 17% of diabetes cases would occur if both lower birth weight and unhealthier lifestyle were present, but not if only one was present - implying that a some type 2 diabetes cases depend on both prenatal and later life factors.

This interaction also indicates that the public health consequences of unhealthy lifestyle would be larger in low birth weight populations, say the authors.

“In summary, we found that both low birth weight and unhealthy lifestyle were associated with a significantly higher risk of type 2 diabetes, and the effects of low birth weight combined with the unhealthy lifestyle score were more than the addition of the risks associated with each individual factor,” say the authors.

“The findings suggest that most cases of type 2 diabetes cases could be prevented by the adoption of a healthier lifestyle, but simultaneous improvement of both prenatal and postnatal factors could further prevent additional cases,” they conclude.
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**Notes to Editors:**
Research: Birth weight and later life adherence to unhealthy lifestyles in predicting type 2 diabetes: prospective cohort study
http://www.bmj.com/cgi/doi/10.1136/bmj.h3672

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