Increased reproductive success of women after prenatal undernutrition?

Sir,

In a recent report in this journal (Painter et al., 2008) based on the follow-up of men and women born in the former Wilhelmina Gasthuis Hospital, Amsterdam between November 1943 and February 1947 and interviewed at age ~58 years, women with famine exposure in utero but not men reported greater reproductive success compared with unexposed controls, with more offspring, more twins, a smaller likelihood to remain childless, and an earlier age of starting reproduction. The study included 473 women, of whom 204 met the study definition of famine exposure.

We wish to bring to the attention of your readers our previous study in this population in which similar questions were addressed (Lumey and Stein, 1997). We interviewed the women at age ~43 years. We reported no significant differences between those with famine exposure in utero and those born before or conceived after the famine with respect to age at menarche, age at first delivery, interpregnancy interval or age at later deliveries, completed family size, childlessness, age at first marriage or proportion married or menopause status. This study included 700 women, of whom 322 met our definition of famine exposure.

Painter et al. expanded the earlier study sample to include additional women controls and men, but restricted follow-up to those residents in or close to Amsterdam, while our study recruited women living anywhere in Holland. The 204 women with famine exposure in utero in the Painter study, defined as births between 7 January 1945 and 8 December 1945, are essentially a subset of the 322 women with famine exposure in utero in our study, defined as births between 1 February 1945 and 31 December 1945.

Some possible explanations for the inconsistent results come to mind. The Painter subset of exposed women may not correctly represent the available sample; there are small differences between the two studies with respect to the dates of birth of the reference sample and to categorization of exposure to the famine; or, study outcomes reported by women when interviewed at age 43 years are different compared with findings obtained at age 58 years. With the available data, these explanations can all be explored.

We are puzzled why the previous study was not discussed by Painter et al. The omission of previous findings in this study population does a disservice to the reader. The two studies should be interpreted together to understand the experience of this cohort of women and the long-term consequences of exposure to famine during gestation.

References


L.H. Lumey1 and Aryeh D. Stein2,3
1Mailman School of Public Health, Columbia University, New York, NY 10032, USA
2Hubert Department of Global Health, Emory University, Atlanta, GA, USA
3Corresponding address. E-mail: lumey@columbia.edu
doi:10.1093/humrep/den394
Advanced Access publication on December 5, 2008

Reply: Increased reproductive success of women after prenatal undernutrition?

Sir,

We regret not having referred to the report by Lumey and Stein.

Their study and our study both examine the effects of prenatal exposure to the Dutch famine on reproductive outcomes among people born in the Wilhelmina Gasthuis in Amsterdam, The Netherlands. Both the studies recruited people living anywhere in the Netherlands. The studies differ with respect to the definitions of exposure, dates of birth of control groups and measures of reproductive success collected, as well as the age at which these were collected. Fig. 1 of both papers shows age at delivery of the first child according to prenatal famine exposure. The findings are remarkably similar: in both studies the age at delivery of the mothers exposed to famine in utero tends to be younger than the age of mothers who were not exposed. In Lumey and Stein’s study, the percentage of women who remained childless was 13% (48 of 378) in the unexposed group compared with 8% (35 of 437) in the exposed groups, these figures are 14 and 8% in our study. These results suggest that women who were prenatally exposed to famine are less likely to be childless.

We compared women exposed to famine in utero with those who were not exposed, while Lumey and Stein compared women exposed to famine in late, mid or early gestation to those who were not exposed. If we analyze our data using this approach, the effects of exposure in early (1.5, 95% CI 1.1–2.1) and mid gestation (1.3, 95% CI 1.0–1.6) are statistically significant, whereas the effect of