The risk of unexplained antepartum stillbirth in second pregnancies following caesarean section in the first pregnancy

Sir,

I read with interest the article by Wood *et al.*[1] that continues the debate on the long-term sequelae of caesarean section. Their data are in contrast to the widely reported findings of Smith *et al.*,[2] quoted as the comparison data in the National Institute for Clinical Excellence Caesarean Section Guideline and thereafter led to the figure of 0.4% for antepartum stillbirth after caesarean being included as a 'serious risk' in the Royal College of Obstetricians and Gynaecologists (RCOG) Caesarean Section Consent Advice.[3]

Although both studies perform multivariate analysis to control for maternal age and smoking and re-analyse their data after exclusion of cases with missing data, Wood *et al.*[1] draw particular attention in their introduction to Smith *et al.*[2] failing to control for the potential confounding of maternal obesity. However, in the methods, they state that (although they controlled for weight), 'the actual maternal weight was not available', and their regression was based only on a dichotomy of less or greater than 91 kg. Similarly, although they also adjust for pre-existing diabetes and hypertension, Smith *et al.*[2] exclude stillbirth from 'toxaemia' and maternal causes such as diabetes prior to their analysis of unexplained stillbirths. The 2006 Confidential Enquiry into Maternal and Child Health Perinatal Mortality report demonstrates the effect of socio-economic factors on stillbirth rates with a 1.7-fold increase for mothers resident in the most deprived area.[4] Wood *et al.*,[1] in contrast to Smith *et al.*,[2] do not adjust for socio-economic factors.

More crucially, in view of the increase in risk of stillbirth using continuing pregnancies as a denominator with advancing gestation demonstrated by Hilder *et al.*,[5] it is surprising that the study does not account for gestation. Although the authors state that delivery prior to 32 and 37 weeks were similar between their study groups, 4.4% more of the 'no previous caesarean section' rate group were delivered beyond 41 weeks, and there was no breakdown of deliveries between 37 and 41 weeks. In view of the likelihood that a significant proportion of the previous caesarean section group chose to deliver electively at or before 39 weeks, coupled with the data from Hilder *et al.*[5] (stillbirth rates of 0.35, 1.27 and 2.12% of continuing pregnancies at 37, 41 and 43 weeks, respectively), this discrepancy in gestation may have a significant impact on the study conclusions. Considering the confidence intervals in their statistical analysis (1.0–1.76, 0.92–1.77 and 0.98–1.89 for univariate, multivariate and survival analysis, respectively), a small difference in gestation at delivery may have altered the statistical significance. The potential increase in the risk of stillbirth of 30% following a previous caesarean discussed by the authors (OR of 1.32 and 1.27 and hazard ratio of 1.36 for univariate, multivariate and survival analysis, respectively) would then take on clinical importance and be in line with the findings of Smith *et al.*[2] who demonstrated an excess of stillbirth even after births were censored at 39 weeks of gestation.

In view of the difficulty in controlling the numerous confounding factors, as the authors point out, the debate will surely continue. ■

References

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3 *Caesarean Section*. RCOG Consent Advice 7. 2006.

4 Confidential Enquiry into Maternal and Child Health. *Perinatal Mortality*. London: CEMACH, 2008.

5 Hilder S, Costeloe K, Thilaganathan B. Prolonged pregnancy: evaluating gestation-specific risks of fetal and infant mortality. *Br J Obstet Gynaecol* 1998;105:169–73.

JDM Nicopoullos

Department of Obstetrics and Gynaecology, Chelsea & Westminster Hospital, London, UK

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