is prematurity, which clearly is the same for both twins. The potential for birth order to increase the baseline risk due to complications during labour and delivery, therefore, would be expected to increase with advancing gestational age. Our study confirmed a positive interaction between being a second twin and gestational age and thus confirms that the assumption of homogeneity implicit in previous analyses was invalid.

Finally, our statistical analysis took into account the paired nature of the data. Many previous studies, including previous large scale analyses, compared data on first and second twins by using statistical techniques that assume independence of observations. The use of unpaired tests for paired data is inappropriate. If we had used the same analytical approach as some previous studies (failed to stratify by gestational age and used a statistical test for unpaired data), we would have obtained, overall, 67 deaths among all first twins and 75 among second twins; this would have failed to confirm a protective effect of planned caesarean section. Sample size calculations show that it will be difficult to obtain randomised controlled trial data to test the hypothesis that planned caesarean section would be protective against perinatal death in twin pregnancies. With a rate of three deaths of second twins due to intrapartum anoxia per 1000 deliveries, allowing 80% power for a one sided test, and assuming that the rate of perinatal death in the planned caesarean group is zero, a randomised controlled trial would need to recruit about 6500 women with twin pregnancies. We propose that women with twins should be counselled about the risk to the second twin and the theoretical possibility of a protective effect of planned caesarean section when considering mode of delivery at term.

We thank Ian White, a senior scientist at the Medical Research Council Biostatistics Unit, Cambridge, for helpful discussion regarding the statistical analysis and for reviewing the completed manuscript.

Contributors: See bmj.com

Funding: No external funding.

Competing interests: None declared.

References


(Accepted 6 June 2002)