Key messages

- Epidural anaesthesia during delivery has been linked to an increased incidence of low back pain later
- Women who underwent epidural anaesthesia during delivery had an increased incidence of low back pain only on the first day after delivery, possibly because of local musculoligamentous trauma associated with insertion of the needle
- At seven days and six weeks after delivery there was no difference in the incidence of low back pain in women who did not have epidural anaesthesia
- General practitioners, obstetricians, anaesthetists, and midwives can assure women that any increased risk of low back pain after epidural anaesthesia is small and transient

provided by a randomised controlled trial. At this time, however, alternative techniques of pain control for use in labour are not as effective as epidural anaesthesia; a randomised trial of epidural versus non-epidural anaesthesia was, therefore, considered unethical. The strengths of our study included a prospective design and a high response rate with less than 1% of subjects lost to follow up. In addition, low back pain was quantified with a reliable and valid measure, and relative risk estimates were adjusted on parity, mode of delivery, ethnicity, and weight at delivery by using logistic regression analysis. The incidence of low back pain of new onset was also estimated by using the subgroup of women with no history of back pain during their pregnancy. Lastly, the study had greater than 90% power to determine a "clinically important" twofold difference in risk of low back pain between the epidural and non-epidural groups at one and seven days after delivery (both for the entire sample and the subgroup of women with back pain of new onset).

One important limitation of the study, however, was low statistical power at six weeks postpartum. That is, based on the incidence of back pain at six weeks this study had only around 50% power to detect a twofold difference in risk of low back pain between the two groups. This is an important issue given the provocative findings at six weeks postpartum—that is, a twofold increased risk of low back pain (epidural *v* non-epidural) in the entire sample and threefold increased risk of back pain in the subgroup with back pain of new onset. The lack of physical examinations was also a limitation as was the inability of the interview questions to capture precisely the quality of the pain—for example, to distinguish whether the back pain was localised and superficial or deep and generalised. In addition, women in the two groups were not formally compared on their attitudes towards pain. (To our knowledge, there are no published data on this issue.) If women with a lower pain threshold were more likely to request epidural anaesthesia, however, it could be argued that these women would also have been more likely to report low back pain. Therefore, any bias would have been towards overestimating rather than underestimating the relative risk (epidural *v* non-epidural).

INTERPRETATION OF FINDINGS

The significantly increased incidence of low back pain in the epidural group on day one might be explained by the local musculoligamentous trauma associated with insertion of an epidural needle. This hypothesis could not be tested, however, as specific data on quality of pain were not collected. In addition, although a substantial proportion of women reported postpartum back pain at seven days (around 20%) and at six weeks (around 10%), the degree of pain was minimal with only one patient at seven days (in the non-epidural group) and two women at six weeks (one in each group) consulting a physician because of the back pain.

The association between epidural anaesthesia and low back pain has been hypothesised to result from poor posture during labour and delivery because of muscular relaxation, lack of mobility, and effective analgesia. Russell *et al* assessed women complaining of backache after delivery and found that 94% had primarily postural backache.[2] The immobility associated with epidural anaesthesia usually lasts less than 12 hours; it could be argued, therefore, that the physiological changes associated with pregnancy and the maternal workload after delivery are more biologically plausible risk factors for postpartum back pain. During pregnancy there is enormous strain on the lower back because of increasing lumbar lordosis, loss of abdominal muscle support, and a rise in the body's centre of gravity.[10] After delivery, when the abdominal muscles are still weak, women must engage in repetitive lifting of the baby, often in the forward bent and twisted positions. These motions are recognised risk factors for low back pain.[11]

In summary, low back pain after delivery is common, but the incidence decreases considerably over the short term, from around 50% on day one to around 10% at six weeks. Most women complaining of low back pain do not seek medical attention. Epidural anaesthesia was associated with a twofold to threefold increased risk of low back pain on day one and six weeks after delivery but no increased risk on day seven. Significance was noted only on day one. Prospective follow up data are required to determine whether epidural anaesthesia is associated with long term low back pain after delivery.

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Correction

Do changes in cardiovascular risk factors explain changes in mortality from stroke in Finland?

An editorial error occurred in this paper by Vartianen *et al* (8 April, pp 901-4). In figure 3 the symbols for diastolic blood pressure were transposed with those for all risk factors; thus the variables are, from top to bottom, smoking, all risk factors, diastolic blood pressure, and observed mortality.