

Here's a clinical mystery... On one postnatal ward in a fairly average hospital at the beginning of this year, almost a third of the women were being given antibiotics. Several of these women's babies were also receiving antibiotics. In all of these cases, the antibiotics were being given prophylactically in response to symptoms of pyrexia and / or tachycardia following labour and birth while clinical staff awaited the results of swab tests. Yet by the time the swab cultures came back showing nothing abnormal had grown, all of the women's and babies' symptoms had resolved.

This could be the bare bones of a plot line for a Robin Cook novel; what caused these women and babies to show symptoms of infection, where no infection could later be found? Have we discovered a new and insidious wonder bug that causes people's temperature and pulse to become raised without appearing on lab slides?

The truth of this scenario is less of a mystery than it might sound if one considers one other piece of information. All of the women on this postnatal ward who were being given prophylactic antibiotics (or whose babies were having these) had an epidural during labour. It seems the answer to this might be found in epidemiology rather than science fiction.

Since 1989, if not before, we have known that epidural analgesia increases maternal and neonatal temperature and pulse and that this should be noted as a potential side effect for women who have used this in labour. In one study (Fusi et al 1989), where a group of women who had epidural were compared to women having pethidine, the mean temperature of the women having an epidural had risen within six hours of its administration. This rise was not related to any clinical evidence of infection. The women and babies who experienced epidural-induced pyrexia were also more likely to experience tachycardia.

These findings are supported by other studies. Macauley et al (1992) showed that nearly a third of babies whose mothers had epidurals

became pyrexia during labour itself, with five percent of babies reaching a temperature of over 40°C; the point at which the authors felt neurological injury could be sustained. Research carried out by paediatricians highlighted the problems with the over prescription of antibiotics to neonates whose mothers had had epidurals, estimating that babies whose mothers had received an epidural were four times as likely to be treated with antibiotics (Lieberman et al 1997). The studies showed that this is not simply an occasional side effect, but something which affects the majority of women who have an epidural.

If antibiotics were completely safe and no knock-on effects ensued from the practice of treating pyrexia, guidelines suggesting prophylactic treatment of signs of infection might not be so problematic. Unfortunately, some of the other aspects of this scenario caused real problems to the affected women. Women were prevented from going home when they would have liked to because their babies were receiving intravenous antibiotics. Others suffered from the effect that antibiotics can have on the immune systems of women and babies, including iatrogenic thrush.

There are lots of risks which women should know about before deciding on an epidural. Increased likelihood of systemic infection is not one of them. However, perhaps the increased likelihood of women and babies being treated for the symptoms of an infection which may not exist is something that women should be told about? This might be one way to solve the problem, as there is reason to suppose that a great many practitioners are not aware of this. While in some units practitioners are aware that this is a common finding in women who have had epidurals, others – as in the example above – either remain unaware of this, or unable to do anything about it because of rigid policies regarding the prophylactic administration of antibiotics in the presence of fever.

Another way of dealing with this situation is to use the knowledge that these symptoms can

be caused by epidural to make individual clinical decisions with women who experience these symptoms. Of course, this will not sit well with those who like to err on the side of caution and risk, and who are more comfortable with the idea of acting on a particular symptom in a prescribed way. Some people would argue that a proportion of these women and babies may actually have infections for which they should be offered antibiotics – and I would agree with this. It would be no more helpful to suggest *never* offering antibiotics to women and babies with signs of infection than the current situation is some areas where women and babies with signs of infection where this might be caused by epidural are *always* offered antibiotics.

It is well understood that infection, particularly in babies, can be potentially dangerous. But in my own practice, I have rarely seen a baby with an infection whose only symptom was pyrexia; generally they tend to show one or more other symptoms, such as breathing anomalies, being unresponsive, floppy or jittery, not feeding well or seeming generally unsettled. In fact, one text on neonatal care (Kelnar et al 1995) suggests that fever should not be considered essential for the diagnosis of neonatal infection. The authors argue that the first signs of infection tend to be non-specific and behavioural, and that waiting for any concern to be confirmed by a raise in temperature can lead to a delay in treating the infection.

Similarly, it is relatively simple to explore other signs of infection with women, by looking at

what happened during their birth, the condition of the placenta, and whether they are experiencing any discomfort or other symptoms. They can then make an informed choice about whether they would like antibiotics 'just in case', or whether they would prefer to wait a few hours to see if their temperature returns to normal.

However we do it, surely we need to find some way of ensuring that women who have epidurals are not automatically signing themselves and their babies up for antibiotics, longer hospital stays and the potential impact these things may have on their first days together.

## References

Fusi L, Steer PJ, Maresh MJA, Beard RW (1989). Maternal pyrexia associated with the use of epidural analgesia in labour. *Lancet* 1989 1: 1250-1252.

Kelnar CJH, Harvey D, Simpson C (1995) *The sick newborn baby 3<sup>rd</sup> ed.* Bailliere Tindall, London.

Lieberman E, Lang JM, Frigoletto F et al (1997). Epidurals, maternal fever, and neonatal sepsis evaluation. *Pediatrics* 99:415-419.

Macaulay JH, Bond K and Steer PJ (1992) . Epidural analgesia in labor and fetal hyperthermia. *Obstetrics and Gynecology* 80(4):665-669.