In the 1990s researchers reviewed the experience with controlled trials of epidural versus non-epidural analgesia. They estimated that, despite millions of women having been offered an epidural block over the preceding 20 years, fewer than 600 appeared to have participated in reasonably unbiased comparisons with other forms of pain relief. They identified nine comparison trials that could be confidently analyzed. The comparisons were commonly measured in terms of levels of hormones and other substances believed to reflect stress during labour. Outcomes for the baby were also the focus of some attention. Yet any comparison of the pain reported by the women themselves was absent in all but two of the trials. In other words, those conducting the trials had largely overlooked an outcome that was surely of supreme importance – how effectively a woman's pain had been relieved.[13]

UNNECESSARY RESEARCH

Respiratory distress in premature babies

Some research falls in between good and bad – it is plainly unnecessary. An example of such research concerns premature babies. When babies are born prematurely their lungs may be underdeveloped, with the risk of life-threatening complications such as respiratory distress syndrome. By the early 1980s there was overwhelming evidence that giving a steroid drug to pregnant women at risk of giving birth prematurely reduced the frequency of respiratory distress syndrome and death in newborn babies. Yet over the ensuing decade trials continued to be done in which steroids were compared with a placebo or no treatment. If the results of earlier trials had been reviewed systematically and combined using meta-analysis (see Chapters 7 and 8), it is unlikely that many of the later trials would have been started – the collective evidence would have shown that there was simply no need. These unnecessary studies therefore denied effective treatment to half the participants in these trials.

Stroke

Another example of unnecessary research, yet again because the results of preceding studies had not been gathered together and

analyzed, concerns the treatment of stroke with a drug called nimodipine (one of a group of drugs called calcium antagonists). If it were possible to limit the amount of brain damage in patients who suffer a stroke, their chances of disability should be lessened. Beginning in the 1980s, nimodipine was tested for this purpose in stroke patients after some animal experiments had given encouraging results. Although a clinical trial in stroke patients published in 1988 suggested a beneficial effect, the results of several more clinical trials of nimodipine and other calcium antagonist drugs proved conflicting. When the accumulated evidence of clinical trials involving nearly 8,000 patients was reviewed, systematically, in 1999, no beneficial effect of the drugs was found (see Chapter 8, p102).[14] Since the use of nimodipine was apparently based on sound scientific evidence, how had this come about?

In the light of the results of research in patients, the findings from the animal experiments were scrutinized properly for the first time. Only when the animal studies were reviewed systematically did it become clear that the design of the animal experiments was generally poor and the results were beset by biases and therefore unreliable. In other words, there had been no convincing justification for carrying out trials in stroke patients in the first place.[15]

Aprotinin: effect on bleeding during and after surgery

Research funders, academic institutions, researchers, research ethics committees, and scientific journals are all complicit in unnecessary research (see Chapter 9). As we explained in Chapter 8, and as the first two examples of unnecessary research indicate, new research should not be designed or implemented without first assessing systematically what is known from existing research.

A shocking analysis published in 2005 focused on controlled trials of a drug called aprotinin to reduce bleeding during and after surgery. Aprotinin works. The shocking bit is that, long after strong evidence had accumulated showing that the drug substantially reduces the use of blood transfusion, controlled trials continued to be done.[16] At the time of the analysis, the reports of 64 trials