

10 Research – good, bad and unnecessary

In earlier chapters we emphasized why tests of treatments must be designed properly and address questions that matter to patients and the public. When they are, everyone can take pride and satisfaction in the results, even when hoped-for benefits do not materialize, because important insights will have been gained and uncertainty lessened.

Although much health research is good – and it is steadily improving as it conforms with design and reporting standards¹ – bad and unnecessary research continues to be done, and published, for various reasons. And as for the perpetual demand ‘more research is needed’, a better strategy would be to do less, but to focus the research on the needs of patients, and so help to ensure that it is done for the right reasons. We explore these issues in this chapter.

GOOD RESEARCH

Stroke

Stroke is a leading cause of death and long-term disability. The death rate is between one in six and two in six during a first stroke, rising to four in six for subsequent strokes. One of the underlying causes of stroke is narrowing (stenosis) of the carotid artery, which provides blood to the brain. The fatty material that coats the inside of the carotid artery sometimes breaks away, blocking smaller arterial tributaries, and thus causing a stroke. In the 1950s surgeons began to use an operation known as carotid endarterectomy to remove these fatty deposits. The hope was that

surgery would reduce the risk of stroke. As with any operation, however, there is a risk of complications from the surgical procedure itself.

Although carotid endarterectomy became increasingly popular, it was not until the 1980s that randomized trials were set up to assess the risks and benefits of surgery. Clearly this knowledge would be vitally important for patients and their doctors. Two well-designed trials – one in Europe and the other in North America – were carried out in patients who already had symptoms of carotid artery narrowing (minor stroke or fleeting, stroke-like symptoms) to compare surgery with the best available non-surgical treatment. Several thousand patients took part in these long-term studies. The results, published in the 1990s, showed that surgery can reduce the risk of stroke or death but that benefit depends on the degree of narrowing of the carotid artery. Patients with relatively minor narrowing were, on balance, harmed by surgery, which can itself cause stroke. These important findings had direct implications for clinical practice.^{2, 3}

Pre-eclampsia in pregnant women

Another outstanding example of good research concerns pregnant women. Worldwide, about 600,000 women die each year of pregnancy-related complications. Most of these deaths occur in developing countries and many are linked to pregnancy-associated convulsions (fits), a condition known as eclampsia. Eclampsia is a devastating condition that can kill both mother and baby. Women with the predisposing condition – pre-eclampsia (also known as toxæmia) – have high blood pressure and protein in their urine.

In 1995, research showed that injections of magnesium sulphate, a simple and inexpensive drug, could prevent fits *recurring* in women with eclampsia. The same study also showed that magnesium sulphate was better than other anticonvulsant drugs, including a much more expensive one, in stopping convulsions. So, the researchers knew it was important to find out whether magnesium sulphate could prevent convulsions *occurring* in women with pre-eclampsia. This Magpie trial, designed to answer this question, was a