

TESTING TREATMENTS

Chapter 10, 10.1 TESTING TREATMENTS

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.

The Magpie trial, designed to answer this question, was a

MY EXPERIENCE OF MAGPIE

'I was really pleased to be part of such an important trial. I developed swelling at 32 weeks which grew progressively more severe until I was finally diagnosed with pre-eclampsia and admitted to hospital at 38 weeks. My baby was delivered by caesarean section and thankfully we both made a complete recovery. Pre-eclampsia is a frightening condition and I really hope the results of the trial will benefit women like me.' Clair Giles, Magpie participant.

MRC News Release. Magnesium sulphate halves risk of eclampsia and can save lives of pregnant women. London: MRC, 31 May 2002.

major achievement, involving more than 10,000 pregnant women with pre-eclampsia in 33 countries around the globe. In addition to normal medical care, half the women received an injection of magnesium sulphate and half a placebo (sham preparation). Magpie gave clear and convincing results. It showed that magnesium sulphate more than halved the chance of convulsions occurring. In addition, although the treatment did not apparently reduce the baby's risk of death, there was evidence that it could reduce the risk of the mother dying. And apart from minor side-effects, magnesium sulphate did not appear to harm the mother or the baby.^{4, 5}

HIV infection in children

The results of good research are also making a real difference to children infected with HIV (human immunodeficiency virus), the cause of AIDS. At the end of 2009, figures from UNAIDS (the joint United Nations Programme on HIV/AIDS) show that an estimated 2.5 million children were living with HIV around the world, 2.3 million of them in sub-Saharan Africa. Every hour, around 30 children were dying as a result of AIDS.⁶ Bacterial infections, such as pneumonia, which are associated with the children's weakened immune system, are a common cause of death. Co-trimoxazole is a widely available, low-cost antibiotic