

SCIENCE AND TECHNOLOGY

Sterile arguments

IRREVERSIBLE female sterilisation is the most widely practised form of birth control across the world. A new technique may make it safer and much easier. All that is required is a bit of skill, less than a dollar's-worth of a drug called quinacrine and a tool similar to those used to insert intra-uterine devices (IUDs). The current alternative, surgical sterilisation, requires anaesthesia, a highly trained doctor, and something approximating to a hospital.

Until last year clinical studies of quinacrine's sterilising effects were oddly peripheral; they went on in parts of the world that have a lot of population pressure but not much prestigious medical research. Then some Vietnamese researchers announced in the *Lancet*, a British medical journal, that they had used the method on 32,000 women, with great success. The rest of the world took notice, and was not sure it liked what it saw. Worried about the drug's safety, the World Health Organisation (WHO) persuaded Vietnam to stop its trial.

Quinacrine is an anti-malarial drug that has been around since the 1930s. In the early 1970s Jaime Zipper of the University of Santiago, Chile, who had invented copper IUDs, discovered that when quinacrine is placed directly in the womb, scar tissue de-

velops that blocks the fallopian tubes. If the damage stopped there, everything might be fine. But it may do more. In bacteria, quinacrine damages DNA, which is a prima facie case for fearing that it might cause cancer in humans. However, lots of other substances do the same sort of damage (coffee, for example); animal studies of quinacrine in the early 1980s showed no short-term toxicity. To some, those animal studies were too small and too short to be convincing. The WHO wants more animal work before there are any further human tests.

Some, though, happened long ago. During the second world war thousands of troops in the Pacific took a tablet of quinacrine every day as a prophylactic against malaria. Some people who took the drug for a long time went yellow, and developed skin disease, but they got better when they stopped taking it. No long-term effects have ever been reported in those people, or in studies of Chilean women sterilised with quinacrine in the 1970s.

There may still be unknown risks to using quinacrine. The risks of pregnancy, however, are well recorded. In poor countries, complications associated with pregnancy are the leading cause of death among women of child-bearing age. And in the

third world the death rate associated with surgical sterilisation can be high. It is against this background that the authors of the *Lancet* paper claim that quinacrine offers real health gains. They calculate that surgical sterilisation of the women would have led to perhaps 30 deaths and at least 540 serious complications; they saw no deaths and only eight serious complications. Some 242 of the women could have been expected to die as a result of pregnancy had they not been sterilised.

Even so, there may be problems. Amy Pollack and Charles Carignan, of the association for voluntary surgical contraception in New York, put together a scathing critique of the *Lancet* article. One of the things they point to is the risk that when the drug does not fully close the tubes, it may increase the number of ectopic pregnancies, in which the fetus grows outside the womb. In poor countries these are almost invariably fatal to the mother and baby. They, researchers at WHO and others all have strong objections to a contraceptive that seems "safe enough" for the third world but has not been sufficiently studied to come up to rich-world safety standards. They feel obliged to ensure complete safety. If that sounds Utopian remember that WHO is also committed to "health for all".

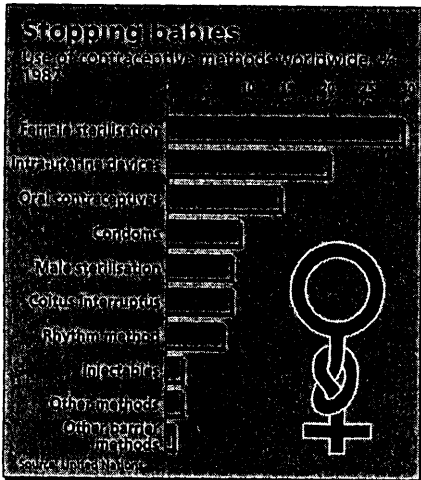
Elton Kessel, at the Oregon Health Sciences University, the linchpin of much of the work on quinacrine, believes that all the data point to the method being safe, not just "safe enough". He feels a different obligation: that women should have as many options available to them as possible for the control of their fertility. There is, of course, the risk that the choice might not be theirs. Quinacrine could make enforced mass sterilisation more practical; ease of use could easily become ease of abuse.

Safety is not the only issue that divides the camps. The WHO is against the use of any female sterilisation less than 95% effective after one treatment. Quinacrine falls short of this, though its efficacy may yet be improved; and it has to be administered twice. Malcolm Potts of the University of California, Berkeley, points out that this makes quinacrine unique. People are used to effective reversible contraceptives (the pill), effective irreversible contraceptives (vasectomies) and less-effective reversible contraceptives (spermicides). Quinacrine, less-effective and irreversible, requires them to think about a whole new category.

The need to think about such a new category may present problems to western researchers. It does not appear to raise them in the minds of Vietnamese women. Dr Potts



Learning the facts of life in Calcutta



and others recently visited Vietnam to talk to women who had been sterilised using the new method. All the women he spoke to said they preferred sterilisation to the ruds they had used before; they understood that the method was permanent and seemed to know that it was not completely effective. Dr Potts also found that the new method had an unexpected advantage. In poor countries surgical sterilisations are often offered immediately after the delivery of a child, when the mother is receiving close medical attention; this is not a time for rational choices about long-term family planning. Many women sterilised in the aftermath of birth come to regret their decision. Easily-administered quinacrine separates delivery from sterilisation.

Dr Potts did not find evidence that women had been systematically coerced

into the trials. Some women in some provinces were offered money to participate, but this was not widespread. Given the demand for sterilisation, incentives were unnecessary; so they were discontinued. In fact, some women seemed willing to pay for it.

Now the trials have been stopped. Family Health International, a charity, is financing a study to follow the women involved; some of the original data are being re-analysed to take criticisms into account. Beyond that, there is no consensus about what to do. One option is animal studies; another is smaller, tightly controlled trials; another is to look for an alternative. Many have already been studied, from antibiotics to superglue; quinacrine seems to offer the best balance of safety and efficacy. The antibiotic tetracycline is known to be safe, but has a high failure rate; other compounds work better, but are known to be dangerous.

Whatever the alternatives, quinacrine is available now. Between 50,000 and 80,000 women from Chile, Costa Rica, Croatia, Egypt, Pakistan, India, Bangladesh, China, Indonesia, the Philippines and Vietnam have been treated with it. For poor countries, which often have a large unmet demand for family planning, it holds out great promise. Contraceptive techniques developed for rich countries-though often tested in poor ones-are expensive. Surgical sterilisation, for example, can cost hundreds of dollars in a poor country. Vietnam has 20 cents per woman per year to spend on family planning. Should it wait for tests that rich countries insist on but are not willing to pay for before continuing?