

## Letters to the Editor

SIR-Hieu and colleagues reported a 12-month life-table pregnancy rate of 2.63 per 100 women following two insertions of quinacrine. Such a rate is higher than most but not all reported rates for surgical sterilisation.<sup>7</sup> Data from other studies of quinacrine (refs 2, 3, and unpublished data) suggest that most contraceptive failures with quinacrine are evidenced within the first 2 or 3 years, which is similar to the findings after surgical sterilisation. However, few long-term studies of surgical sterilisation have been done; those that have, have shown failure rates of 1-3% at 10 years.<sup>4,5</sup> Attention to the pregnancy rate in only the first year of follow-up in Vietnam, with little longer-term follow-up, could lead to overestimation of the long-term failure rate of the method. In addition, the conceptions that took place within a month of quinacrine insertion were terminated by menstrual regulation, and it is not reported whether those pregnancies were confirmed by clinical or laboratory evidence.

Hieu argued that pregnancy rates might be significantly lowered if the proper insertion technique were used. Shelton (Oct 2, p 869) believes that the data in table 3 of the original paper did not support this contention. In his response Hieu agreed, but offered another tabulation showing that the failure rates varied so much by province that the cause surely had to be the clinicians' skill or technique. We agree with Shelton that the original tabulation was not appropriately analysed, and we agree with Hieu that the tabulation they offered in reply was suggestive. However, we believe that the data presented in the original article, if analysed differently, do support the original contention.

In the original tabulation (table 3), it is evident that some clinicians did a great many sterilisations without any failures. We will show that the number of clinicians who had no failures is more than could be explained by chance, which suggests that the clinician's technique or skill could be an important factor. For instance, there were two clinicians who did at least 101 sterilisations without failure, whereas the overall failure rate for the 10 clinicians in this category was 4.8%. With elementary probability calculations, one can estimate that if each of 10 clinicians did 101 sterilisations and each sterilisation had a probability of failure of 4.8%, then the expected number of clinicians with no failures would have been  $0.07(0.952^{101} \times 10)$ , rather than the 2 observed. With the binomial distribution, the observed failure rate is significantly different from the expected ( $p=0.002$ ). A second group of 7 clinicians each did at least 76 operations, with a failure rate of 3.4%. 4 of them had no failures, whereas the expected number would have been 0.5

( $p=0.001$ ). There was no significant difference between observed and expected figures for the groups of clinicians who did smaller numbers of procedures. This analysis of the evidence suggests that some of the experienced clinicians were skilled operators and had significantly fewer failures than would otherwise be expected.

However, there are several weaknesses that temper this conclusion. First, in 47% of cases the name of the clinician who did the second quinacrine insertion was not provided. Second, a definitive analysis should take into account the length of follow-up. If the successful clinicians did a proportionally larger number of insertions in the recent past, there would have been little time for failures to show up. It is possible that the more "skilful" clinicians used a different insertion technique, treated older women, or worked where follow-up was less efficient than elsewhere, thus lowering their apparent failure rates.

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