Doubts have been expressed about the long-term safety of vasectomy because studies conducted in the USA have claimed that vasectomy is associated with an increased risk of prostate carcinoma (1, 2). Recently, Farley et al. reviewed the epidemiological evidence and concluded that there is only a weak association between vasectomy and subsequent prostate cancer (3). Since weak associations may result from methodological shortcomings, Farley et al. pointed out the need for confirmatory studies, particularly in developing countries, where vasectomy is a widely used method of contraception. They also stated that there are, at present, no grounds for suggesting any change in family planning policies with regard to vasectomy. These apparent contradictions have created undue anxiety, especially in India.

Discussion

From the epidemiological point of view, we feel that there is no need for time-consuming and expensive exercises in the developing countries in order to detect a link between vasectomy and prostate cancer since these will not add anything to what we already know. Even if there is a strong association between vasectomy and subsequent prostate cancer, the potential public health impact in developing countries is small because of the low incidence of prostate cancer in these countries. The potential health impact will remain small even if vasectomy is widely practised. Consider the following two examples.

Example 1

The estimated total annual incidence of prostate cancer in Bombay is 8.2 per 100,000 men (3); let us assume that the vasectomy prevalence rate (P) is 5% and that the risk of prostate cancer of those exposed to vasectomy is 60% higher than that of those who are unexposed (relative risk: 1.6) (1, 2). This implies that the prostate cancer occurs in 8.0 per 100,000 non-vasectomized men and in 12.7 per 100,000 vasectomized men. One could calculate the population attributable risk (ARp), i.e., the incidence of the disease in a population associated with the occurrence of a risk factor, using the following formula (4):

\[ AR_p = AR \times P \]

where \( AR \) stands for the attributable risk (i.e., the risk of disease attributable to exposure). Using the above figures,

\[ AR_p = (12.7-8.0) \times 0.05 = 0.24/100 \text{ 000/year} \]
The population attributable fraction \((AF)\), i.e., the fraction of disease in a population attributable to exposure to a risk factor, is given by the formula:

\[
AF_p = AR_p/I_t,
\]

where \(I_t\) stands for the total annual incidence. Thus,

\[
AF_p = 0.24/8.2 = 0.03
\]

Hence, only 3% of prostate cancer in Bombay could be ascribed to vasectomy if one assumes a relative risk of 1.6 and a prevalence of vasectomy of 5%.

**Example 2**

Consider a hypothetical region X where the total annual incidence of prostate cancer is 10 per 100 000 men, the vasectomy prevalence rate \((P)\) is 10%, and the risk of prostate cancer of those exposed to vasectomy is three times that of those who are unexposed (relative risk: 3). This implies that prostate cancer occurs in 8.3 per 100 000 non-vasectomized men and in 25.0 per 100 000 vasectomized men. The population attributable risk \((AR_p)\) is:

\[
AR_p = (25.0\times 8.3 \times 0.1) = 1.67/100 000/year
\]

The population attributable fraction is:

\[
AF_p = 1.67/10 = 0.17
\]

Hence, only 17% of prostate cancers in region X could be ascribed to vasectomy if one assumes a relative risk of 3 in a population where 10% of the men are vasectomized.

These examples illustrate clearly that the potential impact of vasectomy on public health in countries where prostate cancer is uncommon is small, even if a large proportion of the male population is vasectomized. So there would seem to be no point in investigating the association in countries where the disease is rare. Based on the estimates of the first example (Bombay), one needs to follow up carefully \(10^{5}/12.7 = 7874\) vasectomized men and \(10^{5}/8.0 = 12500\) non-vasectomized men in order to detect one case of prostate cancer in each group annually. In the absence of reliable national or regional cancer registries these numbers are too large for any realistic prospective study and, therefore, investigators have to rely on case-control studies. It is well known that case-control studies in this area are fraught with methodological problems (5–7). Hence, it is unlikely that another case-control study into the association of vasectomy and subsequent prostate cancer will add much more to the existing information.

**Conclusion**

Vasectomy is a valuable and highly effective contraceptive, but we believe that, from the public health point of view, large-scale studies into the long-term safety of vasectomy are of low priority in developing countries where vasectomy is a widely used method of contraception and where the incidence of prostate carcinoma is low.

**Résumé**

**Vasectomie et risque de cancer de la prostate**

La vasectomie est une méthode de contraception précieuse et très efficace et nous pensons que, du point de vue de la santé publique, les études à grande échelle sur son innocuité à long terme ne constituent pas une grande priorité dans les pays en développement, où elle est largement employée et où l’incidence du cancer de la prostate est faible.

**References**