RESEARCH NOTE

Quinacrine Pellet Method of Nonsurgical Female Sterilization in Iran: Preliminary Report on a Clinical Trial

By Sheitaneh Soroodi-Moghaddam

For a study of the safety, efficacy and acceptability of female sterilization with quinacrine pellets in a private-practice setting, data on 160 women who obtained the procedure in Tehran between September 1990 and April 1994 were evaluated. Three-fourths of the women were monitored for at least one year, and more than half were monitored for more than two years. By the end of the study period, two women had become pregnant, for a gross pregnancy rate of 1.2%; neither pregnancy was ectopic. Within the first two months after the procedure, about half of the women reported complications or side effects, which were minor and easily treatable; after the first two months, the only side effect reported was delayed menses. The cost of sterilization with quinacrine pellets is one-10th that of surgical sterilization. However, knowledge about the method is not widespread within the medical community in Iran.

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After the 1979 Islamic Revolution in Iran, the new government altered the 1967 fertility control policy, and the pace of population growth accelerated rapidly. In 1986, the population growth rate was 3.8% (3.4% when refugees from Afghanistan are excluded)—substantially higher than the 1976 rate of 2.7%, and one of the highest rates in the world.[1] More recently, in response to social and economic pressures, the government has once again become very concerned with the issue of population growth. The Ministry of Health has taken various steps to promote family planning, from erecting billboards with messages discouraging people from having large families, to providing free oral contraceptives.

Modern contraceptives are available in Iran and are used by roughly half of women in both urban and rural areas. Among urban women, 19% use the pill, 11% each have undergone voluntary sterilization and use the IUD, 8% rely on the condom and 2% are protected by their husband's vasectomy; in rural areas, 27% use the pill, 11% have had a tubal occlusion, 4–5% use the IUD or condom and 1% have a husband who has had a vasectomy.[2] Given the prevalence of tubal occlusion, the cost of hospitalization for sterilization and the risks associated with any surgical procedure, nonsurgical female sterilization is an alternative worth studying.

The only nonsurgical technique for tubal occlusion that is ready for clinical trials is the quinacrine pellet method, developed by Jaime Zipper and colleagues.[3] The method involves the transcervical intrauterine administration of quinacrine hydrochloride to nonpregnant women during the proliferative phase of the menstrual cycle (days 5–12).

This research note describes the first four years of an ongoing trial undertaken in a private-practice setting to determine whether this method is applicable in Iran. The goal of the study is to assess the safety, efficacy, acceptability and ease of delivery of quinacrine.

Study Population

Study participants were carefully selected from among women seeking voluntary sterilization at a single private clinic between September 1990 and April 1994; women were included only if they lived close enough to the clinic to be able to return for long-term follow-up. In all, 168 women underwent sterilization with quinacrine during this period; the analyses are based on the 160 women who returned to the clinic for all scheduled follow-up visits through August 1994. Thus, all of the women were monitored for at least four months; three-fourths were monitored for one year or more, and slightly more than half for more than two years.

Participants were almost evenly divided between those aged 26–35 and those aged 36–45 (52% and 47%, respectively). Two younger women also underwent the procedure: a 19-year-old for whom another pregnancy was medically contraindicated and a 21-year-old who had six children. The women had between one and 11 children: Some 24% had 1–3 children, 56% had 4–6, 18% had 7–9 and 3% had 10 or 11.

Procedure and Results

To ensure informed consent, all prospective acceptors and their husbands were counseled by a family planning specialist prior to the procedure. Counseling included a detailed description of the method and its administration, possible complications and side effects, and the risk of failure. The counselor explained that the effect of the procedure is intended to be permanent and not reversible. Both the wife and the husband signed an informed-consent form.

The International Federation for Family Health quinacrine study protocol,[4] based on the work of Zipper and his colleagues, was applied throughout the study. Originally, Zipper recommended that quinacrine be administered in three doses of 252 mg (seven pellets of 36 mg each) at one-month intervals;[5] this regimen was used for the first 62 procedures. At that point in the study, however, the provider learned that Zipper had changed his recommendation to two monthly doses, each consisting of 252 mg of

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quinacrine plus 50 mg of an antiprostaglandin to lessen spasm and thereby reduce the failure rate and the incidence of minor side effects.[6] These changes were adopted for the last 98 procedures. (Ibuprofen was available only in pellets of 18.5 mg, so the actual dose of antiprostaglandin used was 55.5 mg, administered in three pellets.)

A modified Copper T IUD inserter was used to administer the quinacrine, according to the following procedure: After preparing the cervix and sounding the uterus, the clinician set the blue depth marker on the inserter sleeve, removed the plastic cap and advanced the inserter to the fundus. She then withdrew the inserter 0.5 cm, fixed the inserter sleeve and slowly advanced the plunger to expel all pellets at the fundus. The inserter was then withdrawn. After each insertion, the woman was given a five-day course of antibiotics.

Women returned to the facility for follow-up one, two and 15 days after each insertion; one, two, three and six months after the last insertion; and then annually for three years. There was no charge for these visits. A cycle of oral contraceptives was provided at the time of the last insertion and at the one- and two-month follow-up visits.

By the end of the study period, two women had become pregnant (one who had undergone the three-dose method and one who had had two doses), for a gross pregnancy rate of 1.2%; neither pregnancy was ectopic. Approximately half of the women experienced complications or side effects within the first two months after the procedure (see Table 1). Only two women complained of multiple complications (two each). All complications and side effects were of a minor nature—predominantly lower abdominal pain, local itching and fever—and were easily remedied. No complications were reported after the two-month follow-up visit except for delayed menses.

Discussion

In several respects, sterilization with quinacrine appears to be superior to other contraceptive methods available in Iran. The failure rate of 1.2% observed in this study is quite acceptable. Furthermore, the complications and side effects reported by the study participants were minor when compared with those associated with surgical sterilization. The method also proved to be very easy to deliver in a private-practice setting, and its cost was only one-10th that of surgical sterilization. Although the study did not measure women's satisfaction with the method, it appears to be very high in some instances. For example, on the advice of one study participant, 18 of her extended family members obtained quinacrine sterilization.

Despite the potential advantages of quinacrine sterilization, the method is not widely known in the medical community. Anecdotal evidence suggests that as a result, some Iranian women have been dissuaded by their family doctors from undergoing the procedure, even though it would have been appropriate to the woman's needs.

Similarly, women who have undergone the procedure have subsequently encountered physicians whose lack of knowledge about it became an obstacle to appropriate care. For example, one woman visited a doctor several months after undergoing sterilization with quinacrine to obtain confirmation of its effectiveness. The doctor told her that a few pellets could not possibly make one infertile, but he referred her to a radiologist for a hysterosalpingography. The test, which involves x-raying the uterus and fallopian tubes after injecting a dye, showed that both tubes were indeed occluded—a result that surprised both the radiologist and the doctor who made the referral. However, this test was a poor choice because the pressure it creates in the tubes could have dislodged the plug of scar tissue and reopened a tube; fortunately, this did not happen in this instance.

In another case, a woman who had obtained a nonsurgical sterilization and perineoplasty went to another obstetrician-gynecologist about a year later because she had a slight discharge. When the doctor asked her what method of birth control she was using, she replied that she had undergone tubal occlusion using pellets. Dismissing this answer, the doctor insisted that the woman had likely been the victim of a scam and that her previous physician had probably inserted a contraceptive implant without her knowledge. Only when the doctor examined the woman and commented on how well the perineoplasty had been done did he believe the woman's account.

Thus, dissemination of information about tubal occlusion with quinacrine pellets is critical for the proper introduction and steady proliferation of this simple, low-cost method.

Table 1. Complications and side effects reported following nonsurgical female sterilization with quinacrine pellets, and prescribed treatment, Iran, 1990–1994

Complication	No. of women	Treatment
Lower abdominal pain	18	Analgesic (2–3 days)
Itching (local)	16	Cortisone cream
Fever ≥5 days	14	Antibiotic (4 days)
Backache	8	Analgesic (2–3 days)
Vaginal discharge	8	Antifungal, antibiotic vaginal suppository (6 days)
Spotting	8	None
Decreased menses	7	None
Cervical adhesion	1	Surgical correction
Bleeding	1	Vasoconstrictor

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Resumen

En un estudio sobre la seguridad, eficacia y aceptabilidad de la esterilización femenina en base a grageas de quinacrina en un medio de consulta médica privada, se evaluaron los datos de 160 mujeres que se sometieron a este procedimiento en Teherán, entre septiembre de 1990 y abril de 1994. Se controló al 75% de las mujeres por un período mínimo de un año, y más de la mitad por más de dos años. Al final del estudio, dos mujeres quedaron embarazadas, lo cual significó una tasa bruta de embarazos del 1,2%; ninguno de los embarazos fue ectópico. Dentro de los primeros dos meses de realizado el procedimiento, aproximadamente la mitad de las mujeres registraron complicaciones o efectos secundarios, los cuales fueron pequeños y de fácil tratamiento; luego de los dos primeros meses, el único efecto secundario fue el retraso de la menstruación. La esterilización en base a grageas de quinacrina cuesta la décima parte del valor de una esterilización quirúrgica. Sin embargo, no se ha di-

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seminado ampliamente el conocimiento de este método entre la comunidad médica de Irán.

Résumé

Aux fins d'une étude sur la sécurité, l'efficacité et l'acceptabilité de la stérilisation féminine par pastilles de quinacrine en pratique de clientèle, les données relatives à 160 femmes ayant obtenu la procédure à Téhéran entre les mois de septembre 1990 et d'avril 1994 ont été évaluées. Soixante-quinze pour cent des femmes ont été surveillées pendant au moins un an, et plus de la moitié, pendant plus de deux ans. Au terme de la période d'étude, deux femmes s'étaient retrouvées enceintes, soit un taux de grossesse brut de 1,2%; aucune de ces deux grossesses ne s'était avérée extra-utérine. Au cours des deux premiers mois qui avaient suivi la procédure, la moitié des femmes environ s'étaient plaintes de complications ou d'effets secondaires, toutefois mineurs et faciles à traiter. Au terme des deux premiers mois, le seul effet secondaire signalé0 était celui de règles tardives. Le coût de la stérilisation par pastilles de quinacrine est 10 fois inférieur à celui de la procédure chirurgicale. La méthode est cependant peu connue dans les milieux médicaux iraniens.