
Quinacrine Hydrochloride Pellets: Three-year Follow-up on a Non- surgical Method of Female Sterilization

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Abstract

The efficacy of three transcervical insertions of quinacrine hydrochloride pellets 1 month apart to produce tubal occlusion was evaluated in 151 women in Valdivia, Chile. Three-year follow-up has been completed for 81% of the women. The gross life-table pregnancy rate was 4.3 per 100 women at 36 months after the third insertion. The intrauterine insertion of quinacrine pellets can be an effective non-surgical sterilization procedure.

Introduction

The demand for female sterilization far exceeds the ability of most countries to provide services. The development of a rapid, effective, safe method that can be performed by paramedical personnel remains a high priority.

Non-surgical sterilization techniques currently under investigation offer the possibility of such a procedure. Considerable research has focussed on tubal occlusion techniques involving the injection of pharmacologic agents and adhesive materials into the oviduct, either through the hysteroscope or through a blind transcervical delivery system.

For many years, Zipper and associates have evaluated the transcervical instillation of quinacrine hydrochloride for effecting permanent sterilization. Their initial animal studies indicated that quinacrine selectively produced significant morphologic changes in the reproductive tract and caused permanent tubal fibrosis and occlusion in the rat (1). In clinical trials, Zipper *et al.* evaluated various doses, concentrations and solvents for the suspension as well as different instillation schedules of quinacrine (2,3). Three instillations proved the most effective schedule of quinacrine delivery, but there were still pregnancy rates of almost 10% (4).

Zipper's work led to the development of quinacrine hydrochloride pellets, a delivery system designed to bring the chemical into prolonged contact with the tubal ostia

through uterine retention. Results of an early study were encouraging: at 1 year after three insertions of 250 mg quinacrine pellets, the cumulative gross life-table pregnancy rate was 3.1 per 100 women (5).

A three-center clinical trial was conducted to further evaluate the efficacy of the yuinacrine pellet method of non-surgical sterilization. Results of this trial have been reported previously (6,7). This paper presents 3-year follow-up data on women at one center who participated in the trial.

Materials and methods

Each yuinacrine hydrochloride pellet is cylindrical and has a diameter of less than 4 mm. The pellets are compacted to contain 10 mg quinacrine per millimeter of length (Figure 1). Insertion is accomplished by placing the pellets in a plastic tube with a push rod positioned behind them. The insertion procedure is essentially the same as that for inserting an IUD (Figure 2).

From March to the end of December 1979, 151 women at an outpatient clinic at the Universidad Austral de Chile School of Medicine, Valdivia, Chile, entered the study after giving informed consent. Seven pellets containing a total of 250 mg quinacrine hydrochloride were to be inserted at admission and again at 1 month and 2 months after admission. Insertions were performed during the proliferative phase of the menstrual cycle in women who had not recently been pregnant (> 42 days since last pregnancy terminated). No additional contraceptives were used. Clinical follow-up was scheduled at 6, 12, 24 and 36 months after the third insertion and at any time when complications or complaints occurred.

Only those women who requested sterilization for family planning reasons and who did not have a history of medical or psychiatric disorders were selected as subjects. If the patient appeared to be unduly nervous or had any pathologic pelvic condition

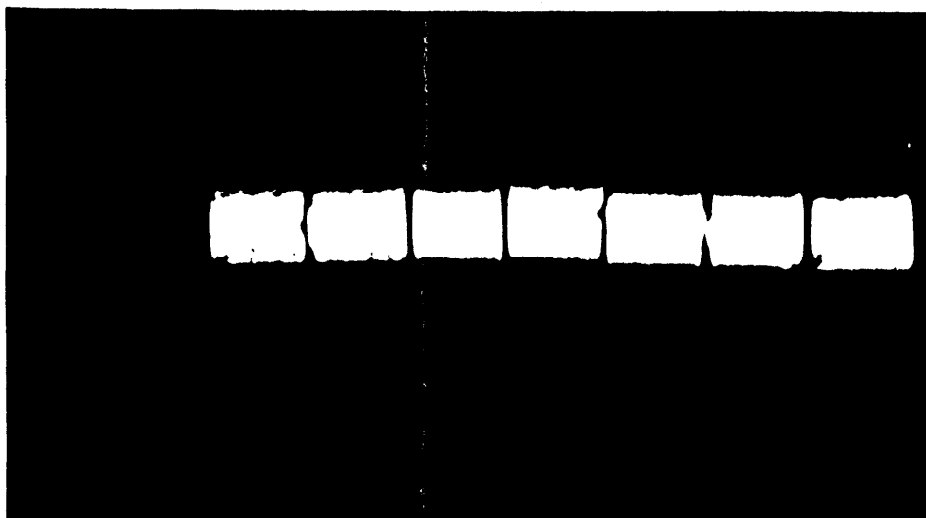


Figure I Quinacrine pellets

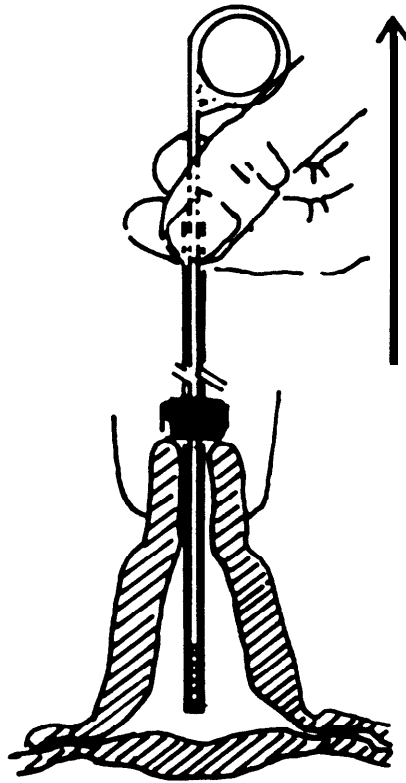


Figure 2 Technique of quinacrine pellet insertion

(except cervicitis), she was excluded from the study and was either scheduled for a surgical sterilization procedure or provided with another method of contraception.

Results

The women entering the study had a mean age of 31.8 years and a mean of 3.3 live births.

Only two women did not complete the scheduled three insertions of quinacrine pellets. One woman had chronic pelvic inflammatory disease and the second contracted a viral infectious hepatitis after the first insertion.

As reported previously (7) only minor complications and complaints often associated with IUD insertion were reported at insertion or between insertions. In most cases, the complications or complaints were of a temporary nature, disappearing within a few hours or a few days after the procedure. Menstrual disturbances associated with the quinacrine procedure were also transient.

More than four fifths of the women returned for 36-month follow up. Table 1 shows the quinacrine pellet method to be very effective. The cumulative gross life-table pregnancy rate is 4.3 per 100 women at 36 months. Seven pregnancies have been

Table 1 Cumulative gross life-table pregnancy rates per 100 women who completed three insertions of quinacrine hydrochloride pellets

	<i>Pregnancy rate</i>	<i>Follow-up rate</i>
6 months	0.7 ± 0.7	100.0
12 months	0.7 ± 0.7	99.3
24 months	3.4 ± 1.5	97.2
36 months	4.3 ± 1.7	81.1

reported; they occurred at 4, 15, 18, 19, 24, 34 and 38 months after the third insertion. Four were terminated by an induced abortion procedure, one ended in a spontaneous abortion, and two were carried to term. The term pregnancies occurred 18 and 24 months after the third insertion; the infants were born without any problem.

Follow-up problems were reported by 41 women (27.5 %) in the 36 months since the third insertion (Table 2). Most problems were minor and transitory. Surgery was

Table 2 Events* occurring after three insertions of quinacrine pellets (n = 149)

	No.	%
Pregnancy	7	4.7
Menstrual		
Amenorrhea	1	0.7
Menorrhagia	5	3.4
Dysmenorrhea	7	4.7
Pelvic		
Ovarian cyst	1	0.7
Dysplasia	10	6.7
Episodic pelvic/abdominal pain	2	1.3
Trichomonas	1	0.7
Appendicitis	1	0.7
Transient complaints		
Headaches	2	1.3
Dyspareuniat	14	9.4
Galactorrhea	1	0.7
Total women with one or more events	41	27.5

* Multiple events may be reported for each woman

† These reports were transitory (reported at a single follow-up) for all but three women

required for seven women, including four conizations of the cervix in women with dysplasia, one appendectomy and one removal of an ovarian cyst. The seventh woman had exploratory surgery because of intermittent and chronic pelvic pain. The genital tract was normal. Both tubes were excised and histological examination showed bilateral closure.

Conclusion

The intrauterine insertion of quinacrine pellets has been shown to be an effective and safe non-surgical sterilization procedure. In general, complications and complaints associated with the procedure were minor and of a transitory nature. By 36 months after the third insertion, seven of the 149 women had become pregnant. Since all but one of these pregnancies occurred more than a year after the third insertion, recanalization probably occurred in these cases.

There is no doubt that non-surgical sterilization is one of the most important priorities of contraceptive technology. The quinacrine pellet system is a simple, blind method that has great potential in this area.

Acknowledgment

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