Introduction

Screening for genital Chlamydia trachomatis prior to an induced abortion is still not routinely performed. In Denmark only 17% of the hospitals performing induced abortion carried out screening for C. trachomatis [1]. The varying prevalence of genital C. trachomatis infection, the lack of symptoms related to sequelae, and the lack of long-term follow-up studies of the patients might explain this continued divergence in attitudes [2].

This paper presents a long-term follow-up of a group of women harbouring cervical C. trachomatis at the time of an induced first trimester abortion. In a previous clinical double-blind study exploring the efficacy of erythromycin in prevention of post-abortion pelvic inflammatory disease (PID) with special attention to those at high risk of PID, i.e. harbouring C. trachomatis, we found an 8% frequency of C. trachomatis (34/428) [3]. In that study, all women had a Chlamydia test performed prior to the abortion. The results of the Chlamydia tests were blinded, as in Denmark at the time of the study it was not considered relevant to screen women seeking abortion for C. trachomatis. After termination of the study [3], we recontacted all the women who had harboured cervical C. trachomatis at the time of abortion, to assess both the course of early-onset PID (within 6 weeks) and late-onset PID (i.e., PID within 2–24 months after the abortion). We included all 34 women with cervical C. trachomatis, thus also women who were excluded from the original double-blind randomized study [3].

Materials and Methods

From October 1985 to March 1988, 432 women hospitalized for an induced first trimester abortion were enrolled in a double-blind randomized study [3]. The setting was a general surgery ward in a county hospital. The patients were randomized to receive either placebo or erythromycin stearate (Abboticin®) 500 mg twice daily for 7 1/2 days (15 doses), starting the evening before the abortion. Erythromycin was chosen in that study because it is a standard treatment for PID in Denmark, besides being effective against C. trachomatis. The study was approved by the National Board of Health and the local ethical committee. The results are reported elsewhere [3].

According to the hospital’s standard procedures, all women were cultured for Neisseria gonorrhoeae in the cervix uteri and the urethra. According to the protocol [3], all women entering the study were examined for cervical C. trachomatis and the results of the Chlamydia tests were blinded until the termination of the randomized study. C. trachomatis was detected by either direct immunofluorescence microscopy (Microtrak, Syva) or enzyme immunoassay (Chlamydiazyme, Abbott). Before discharge, each patient received a follow-up sheet and was instructed to contact her general practitioner 1 week after the abortion and following the first menstruation, or at any time in case of complications. Follow-up by the general practitioner is the standard procedure for follow-up after induced abortion in the community. The general practitioners in the community were informed about the criteria for diagnosing PID. These criteria were based on a study by Jacobsen and Westström [4] and were defined in the protocol. PID was diagnosed if the woman developed lower abdominal pain plus at least two of the following characteristics: 1) tenderness of the uterus plus pain on moving the cervix 2) tenderness of tubes, 3) adnexal masses, 4) abnormal vaginal discharge, 5) abnormal bleeding and 6) fever above 38°C. The study was blinded and the general practitioners and the patients did not know whether they received erythromycin or placebo nor were they given the results of the Chlamydia tests.
This study group for the follow-up study consisted of all 34 women harbouring cervical *C. trachomatis* at the time of the abortion. In the original double-blind study, of the 34 women harbouring *C. trachomatis* 16 were randomized to erythromycin, and 18 to placebo. In the period from January to March 1988 (i.e., 2 to 24 months after the abortion) we recontacted these 34 women (median 12 months after the abortion for women receiving erythromycin and 11 months for women not receiving erythromycin). A gynaecological history was obtained, information was sought from the records of the general practitioners, and the patients had a gynaecological examination with a repeat test for *C. trachomatis*. Four patients were not traceable: two women gave their medical history, but did not show up for the gynaecological examination and repeat *Chlamydia* test (Figure 1). For the statistical evaluation, Fisher's exact test and survival analysis by Kaplan-Meir estimates and Mantel-Cox test were used to estimate the cumulative probability for acquiring early- and/or late-onset PID [5]. These tests compensate for both the variation in the time of observation and for the difference in size of the two study populations.

**Results**

Table 1 shows the clinical course of the women with *Chlamydia* infection at the time of abortion. Within the first 6 weeks after the abortion, 30% (6/20) of the untreated women developed early-onset PID in contrast to 7% (1/14) of the women treated with erythromycin (*p* = 0.20). At follow-up more than 6 weeks after the abortion, four

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* Two of the patients randomized to erythromycin did not take the erythromycin and are included in the no-erythromycin group in the follow-up study.

* One woman was excluded from the randomized study due to a positive culture for *Neisseria gonorrhoeae*. She received 5 million IU penicillin preoperatively. As she also took erythromycin she is included in the follow-up study.

* One patient was treated at the time of the abortion with pivampicillin 350 mg t.i.d. for 6 days.

Figure 1: Treatment of the women harbouring *Chlamydia trachomatis* at the time of the abortion in the double-blind randomized study [3] and in the present follow-up study. The women were followed-up less than 6 weeks (early follow-up) and/or 2–24 months (late follow-up) after the abortion and *Chlamydia* tests were repeated 2–24 months after the abortion.