

Incidence of infertility: etiology, pregnancy / spontaneous abortion rates according to age of female partner

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Abstract

A retrospective study was performed on 200 consecutive cases seeking infertility care prior to the availability of IVF to determine the relative proportion of female patients <35 years (group 1) vs ≥ 35 (gr 2) old. The study would determine if there was a difference in the types of infertility etiologies and the relative success in treating them. There were no significant differences between Group 1 (n=164) and Gr 2 (n=36) in the frequency of infertility etiologies: ovulatory dysfunction (62% vs 63%); tubal factor (5% vs 3%), endometriosis (34% vs 33%); cervical factor (26% vs 22%), and male factor (13% vs 22%). There were no differences in the use of ovulation inducing drugs employed for the therapy (clomiphene citrate - 25% vs 17%; human menopausal gonadotropins - 31% vs 44%; and bromocriptine 2% vs 0%). The eight month pregnancy rates (PRs) were also similar. For Group 1, PR was 55% vs 47% in Group 2. SAB rate was 14% vs 18%. Overall, the conception potential in the older infertility patient is similar to the younger population and their etiologic factors and therapies are comparable; however SAB rates increases with age.

Introduction

Previous studies suggested that fecundity decreases with advanced age (Gindoff, Jewelewicz 1986; Henry 1961; Leridon 1977; Talbert 1968). Tulandi et al. (1981), confirmed that fertility does indeed decline as age increases but stated that the most important factor was not ovulatory dysfunction. In fact, the most common cause of infertility in women age 36-40 was the tubal factor (Tulandi et al, 1981).

In contrast to other infertility etiologies, tubal factor requires the treatment with expensive in vitro fertilization (IVF) which is not available through the primary health care providers. Therefore, most present day infertility specialists report a higher proportion of tubal factor cases who tend to be somewhat older, possibly because they have better financial resources or they decide to take an aggressive approach due to approaching menopause.

The present study was performed on the patients seeking infertility treatment prior to availability of IVF and was aimed at evaluating the reproductive capacity taking into consideration a difference in the types of infertility etiologies.

Materials / Methods

1. Design:

Two hundred consecutive cases were selected retrospectively from patients presenting for infertility in a university associated facility prior to availability of IVF program.

2. Patients:

The following criteria for inclusion were applied to a female partner. Serial pelvic sonography and sera estradiol (E_2) and progesterone (P) measurements to determine the women's ability to produce a mature follicle and release an oocyte (Check et al, 1984; Hackeloer 1978; Renaud et al, 1979; Smith et al, 1980). Post-coital test to determine a possible cervical factor (Check et al, 1980). Recent laparoscopy and/or hysterosalpingography have been applied to evaluate possible tubal factor or endometriosis (not for all patients) (Nowroozi et al, 1987). Mid-luteal phase serum P was measured and a late luteal phase endometrial biopsy was obtained to determine whether P supplementation was adequate (Check et al, 1987). All male partners were required to have a semen analysis and normal levels were based on standards established by the World Health Organization (WHO, 1987)

3. Treatments:

The following therapies were applied to treat the female infertility factors:

- a. Ovulatory factor - clomiphene citrate (CC), human menopausal gonadotropins (hMG), bromocriptine, or human chorionic gonadotropin (hCG) (utilized in case of failure to release oocyte).
- b. Cervical factor - guaifenesin, short course of estrogen, or estrogen and hMG.
- c. Endometriosis and/or tubal factor - laparoscopic coagulation or tuboplasty.
- d. Male partners with inadequate sperm were treated with CC and/or split ejaculate insemination.

All patients were required to be monitored within an 8 month time period from their initial consultation and/or up to 12 weeks after pregnancy achieved.

Table 1 The Frequency Of Infertility Etiologies*

Etiologies	Group 1 (<35, n=164)	Group 2 (\geq 35, n=36)
Ovulatory factor	102 (62%)	23 (63%)
Cervical factor	42 (26%)	8 (22%)
Endometriosis	38 (34%)	8 (33%)
Tubal factor	9 (5%)	1 (3%)
Male factor	21 (13%)	8 (22%)

* p>.05

Table 2 The Frequency Of The Use Of Ovulation Inducing Drugs*

Medication	Group 1 (<35, n=164)	Group 2 (\geq 35, n=36)
Clomiphene citrate	41 (25%)	6 (17%)
Human menopausal gonadotropin	51 (31%)	16 (44%)
Bromocriptine	4 (2%)	0 (0%)
Total	96 (58%)	22 (61%)

* p>.05

Table 3 8 Month Pregnancy And Spontaneous Abortion Rates (SAB)*

	Group 1 (<35, n=164)	Group 2 (\geq 35, n=36)
Number of pregnancies	91 (55%)	17 (47%)
Number of SABs	13 (14%)	3 (18%)

* p>.05

4. Statistical Analysis:

Women were divided into two groups according to their age:

Group 1 (age 34 and under, n=164),
group 2 (age 35 and over, n=36).

A subset of women 41 years of age and over was also examined (n=8).

Chi-square analysis was utilized to compare pregnancy rates (PRs), abortion rates, distribution of infertility factors and types of therapies. A p value of .05 was used.

Results / Discussion

There were no significant differences in the frequency of infertility etiology (Table 1) or the use of ovulation inducing drugs (Table 2). The pregnancy rates were not significantly different in women 35 years of age and over, and women under 35 years of age (47% vs 55%) (Table 3). Similarly, spontaneous abortions were not statistically different in group 2 vs group 1 (18% vs 14% (Table 3). However, if the subset of women ≥ 41 years of age were evaluated, though 6 of 8 conceived, 2 of 6 (33%) aborted.

It would appear that the reproductive potential in women ≥ 35 is similar to the younger population. Furthermore, since the etiologic factors and therapies are comparable, the older women are not prone to develop more severe infertility problems than younger women. Despite higher frequency of miscarriages, women age over 40 still have an encouraging prognosis for pregnancy even without use of assisted reproduction techniques. In conclusion, the data demonstrated that the non-IVF approach can still be effective in correcting infertility in women throughout the reproductive life span.

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