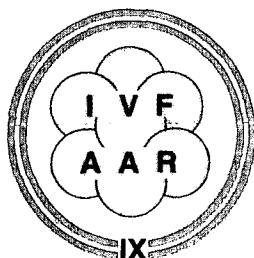


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Culture and treatment of mycoplasma/ureaplasma (M/U) infection not found helpful to improve pregnancy rates following IVF

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SUMMARY

Presented herein is a matched-controlled study performed to attempt to determine if the presence of mycoplasma or ureaplasma (M/U), as demonstrated by positive cultures in cervical mucus or seminal fluid, has any detrimental effects on subsequent pregnancy rates (PRs) following in vitro fertilization (IVF). Furthermore, the benefits of doxycycline treatment would be assessed. No difference in PRs was found in couples where at least one partner was positive for M/U; 11/75 (14.6%) vs the negative controls 13/75 (17.3%). A possible trend was found in males positive for M/U, in that the PR of the female partners was only 7.1% vs 11.4% for their matched controls. Even if a larger study supports a reduced PR in men positive for M/U, treatment does not seem to change outcome.

INTRODUCTION

The importance of mycoplasma/ureaplasma (M/U) infection of the genitourinary system as a cause of infertility is a subject of debate. The

medical literature is replete with studies on the association of M/U and infertility. Some studies have found that infection with M/U species impairs sperm physiology (1). A significant improvement in sperm motility (both the speed of forward progression and the percentage of motile cells) was found when males were successfully treated for M/U infection (2). One study on the effect of these infectious agents on IVF outcome concluded that the presence of M/U in semen had no deleterious effect on sperm count, motility, sperm morphology or % fertilization of eggs (3). However, another study concluded that there was a significant reduction in the PRs after embryo transfer (ET) in the infected group, whereas, M/U did not alter fertilization parameters, embryo retrieval per puncture or PRs (4).

Some IVF-ET centers take a very conservative approach by placing all patients initially on antibiotics, e.g., doxycycline; others culture for mycoplasma and treat only those patients who test positive with a course of antibiotics. Yet other centers do not culture at all.

The study presented herein evaluated the effect of the presence of M/U in cervical mucus on the PR following IVF-ET. We have followed a cautious policy of culturing for M/U and treating patients who test positive with doxycycline 200 mg for 14 days before commencement of the IVF-ET protocol. The subsequent pregnancies of M/U positive patients post-treatment were compared with M/U negative controls undergoing IVF-ET during the same time who were matched for infertility factors, age and protocol followed. Furthermore, the PRs would be compared to those initially positive for M/U remaining positive vs those negative on re-culture.

MATERIALS AND METHODS

Seventy-five couples undergoing IVF-ET during April 1992 to September 1993 at the Cooper Institute for IVF, of which at least one partner tested positive for M/U cervical or sperm culture were included in this study. Patients and their partners who tested positive for M/U were treated with doxycycline 200 mg for 14 days. Testing was repeated after treatment prior to the IVF-ET procedure. A few male patients missed the initial testing and a few male and female patients were not re-tested. Some patients continued to test positive after treatment. The control group was comprised of seventy-five couples who tested M/U negative, and who met the matching criteria during the same period. Selection criteria included age, common infertility factor, and similar protocols followed. Statistical analysis comparing the subsequent PRs between the two groups was performed using chi-square analysis.

RESULTS AND CONCLUSIONS

Comparison of PRs was made between the two groups (see Table 1). The clinical PR for the initially M/U positive group was 11/75 (14.6%) and for controls 13/75 (17.3%) (chi-square=NS).

Of the 75 females in the study group, 6 tested M/U negative (male partners only were positive) and 69 tested M/U positive initially. The 6 females who tested M/U negative had a PR of 1/6 (16.6%) vs 2/6 (33.3%) in controls. Of the 69 females who were initially positive and

treated 41 had successful treatment, 9 stayed positive and 19 were not retested; there was a PR of 10/69 (14.4%) vs 11/69 (15.9%) for the controls. The PRs in these three categories and their controls were 6/41 (14.6%) vs 7/41 (17%), 3/9 (33.3%) vs 3/9 (33.3%) and 1/19 (5.2%) vs 1/19 (5.2%).

Table 1 Comparison Of Clinical Pregnancy Rates Following IVF-ET In Patients Where At Least One Member Of The Couple Had Positive Cultures For Mycoplasma Vs Controls

After treatment for M/U infection:	Based on couples	PRs study group	PRs controls
Both partners remain positive	1	0/1	0/1
Male partner positive/female negative	1	0/1	0/1
Female partner positive/male negative	7	3/7 (4.2%)	3/7 (4.2%)
Both partners negative	31	4/31 (12.9%)	8/31 (25.8%)
Either or both partners not tested/re-tested	35	4/35 (11.4%)	2/35 (5.7%)
Total	75	11/75 (14.6%)	13/75 (17.3%)
After treatment for M/U infection:	Based on female patients only		
M/U positive	9	3/9 (33.3)	3/9 (33.3%)
M/U negative	47	7/47 (14.8%)	9/47 (19.1%)
Not re-tested	19	1/19 (5.2)	1/19 (5.2%)
Total	75	11/75	13/75
After treatment for M/U infection:	Based on male patients only		
M/U positive	2	0/2	0/2
M/U negative	46	8/46 (17.3%)	11/46 (23.9%)
Not tested/re-tested	27	3/27 (11.1%)	2/27 (7.4%)
Total	75	11/75	13/75

Of the 75 males in the study group, 32 tested M/U negative and 32

tested M/U positive initially, 11 were not tested. If one evaluates according to these male partners, the 32 who initially tested M/U negative contributed to a PR of 7/32 (21.8%) vs 8/32 (25.0%) in controls. The 32 males who were initially positive and treated for it, not always successfully, had a PR of 2/32 (6.2%) vs 5/32 (15.6%). Of these 32, 14 had successful treatment, two stayed positive and 16 were not retested. The PRs in these categories were 1/14 (7.1%) vs 3/14 (21.4%), 0/2 vs 0/2 and 1/16 (6.2%) vs 2/16 (12.5%) (chi-square=NS).

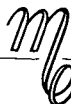
There was no significant difference in PRs in the two groups for M/U infection. The female patients who were successfully treated for M/U infection had a PR comparable to that in the controls (6/41 vs 7/41). For females who continued to test M/U positive even after treatment, the PR was the same in the control group, which would seem to imply that M/U positive in cervical culture may not be a factor in reducing PRs following IVF-ET. The lowest PR was in the not retested category (1/19), but the PR was the same in the controls.

The numbers for the study are not large enough to conclude that the presence of a positive M/U culture in the male contribute to a reduced PR. However, there could have been a trend detected (PR of 6.2% vs 15.6%/transfer). A larger study would therefore need to be conducted to make any definite conclusions. Whether this larger study would have any clinical practical benefit is dubious, however, 14 patients who were treated and were negative on re-culture still had a lowered PR of 7.1%. Nevertheless, enthusiasts of treatment could still argue that two weeks of therapy might be insufficient. This study does not support the empiric treatment of a two week course of doxycycline.

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