

THERAPEUTIC INSEMINATION BY DONOR (TDI) ACHIEVES HIGH PREGNANCY RATES IN INFERTILE COUPLES REGARDLESS OF MALE MOTILE SPERM DENSITY

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Therapeutic insemination by donor (TDI) was just as successful in achieving pregnancies in couples in whom the male counterparts had subnormal motile densities as in those with normal levels. All wives in this study had an infertility factor that was corrected and remained so for at least 8 months. Thus, motile density may not be a particularly good predictor of male fertility potential.

Key Words: infertility, insemination, motility, pregnancy, semen, sperm.

INTRODUCTION

The World Health Organization has established the lower limit of normal for motile sperm density as $10 \times 10^6/\text{ml}$ ($20 \times 10^6/\text{ml}$; 50% linear progressive motility). Nevertheless, a significant number of pregnancies have been recorded in infertile couples for whom treatment was restricted to the female partner despite the presence of a subnormal semen analysis in the male counterpart.^{1,2} There are also couples with long-term infertility and semen analyses that test normal who have achieved pregnancies when treated with therapeutic insemination by donor (TDI).³ The present study was designed to determine whether a low motile density fraction of the semen analysis is predictive of male subfertility in group of infertile couples where a female factor was identified and fully corrected for at least an 8-cycle span. The method used to evaluate motile density was a comparison of pregnancy rates in 8 cycles of TDI therapy between couples where the male partner's motile density was subnormal versus those where male levels were normal.

MATERIALS AND METHODS

Eighty-eight couples with at least 1½ years of infertility were selected for the study. Requirements for inclusion consisted of the following: the female partner had been diagnosed

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with one or more infertility factors and although these factors were corrected, no conceptions occurred during at least 8 treatment cycles. Infertility factors included luteal phase defects, anovulation, cervical factor, endometriosis, tubal occlusion, and/or adhesive disease. After correction of her infertility problem(s), each female was required to produce a mature follicle by sonographic (18–24 mm diameter) and hormonal criteria (minimal serum estradiol 200 pg/ml per mature-sized follicle), have appropriate quality cervical mucus at the time of the mature follicle, demonstrate release of the ovum from the follicle, have an in-phase late luteal phase endometrial biopsy, and have bilateral patent tubes with no endometrial implants.

Whatever treatment the female counterpart had previously received was continued during the 8 cycles of TDI (if 8 cycles were needed). Two inseminations per cycle were performed, with timing based on follicular maturation studies. The number of pregnancies during the 8 treatment cycles was recorded.

A chi-square (χ^2) analysis was used to test differences in pregnancy rates according to motile density fraction of sperm. Statistical significance was measured at or below the $p = .05$ level of probability. All semen analyses were performed with a Makler Chamber by one of three experienced andrology technologists. Males with extremely low motile densities ($\leq 2.5 \times 10^6/\text{ml}$) were excluded from the study.

A total of 66 out of 88 couples (75%) conceived within 8 cycles of TDI treatment. The breakdown according to the percentage motile densities is seen in Table 1. No significant differences in pregnancy rates were found between any of the groups ($p = .28$). In fact, all did quite well with TDI.

DISCUSSION

A priori one might generally have expected that the best response to TDI in couples failing to conceive despite correction of all female factors would be in cases where the male counterpart shows low motile sperm densities. In couples (in this study) where the motile sperm densities were found to be normal, it was thought that perhaps an occult female factor might be the cause of the refractory infertility problem. Instead all groups achieved a high pregnancy rate following TDI.

The data thus suggest that motile sperm density (of at least $2.5 \times 10^6/\text{ml}$) fails to distinguish fertile from subfertile males. Previously we found that 63% of males with subnormal semen analyses achieved pregnancies during 8 cycles of exclusive treatment of the wives¹; thus the subnormal semen specimen and particularly motile density did not correlate well with subfertility. Interestingly, since the present data indicate that motile sperm density cannot

TABLE 1 Correlation of Pregnancy Rates With Motile Sperm Densities

	Motile Sperm Density (mil/ml)			
	$\geq 2.5 - < 5$	$\geq 5 - < 10$	$\geq 10 - < 15$	> 15
No. couples	3	12	43	30
No. pregnant	2	11	32	21
Percent pregnant	67	92	74	70

predict or identify male subfertility, these findings underscore the need to seek other semen parameters to better aid in distinguishing the fertile from the subfertile male.

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