

# Knowledge and Attitudes of Women towards Multiple Embryo Transfer, Fetal Reduction and Multiple Pregnancy

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## ABSTRACT

**Background:** Multiple pregnancy and preterm delivery are well-known complications of IVF/ICSI treatment. Fetal reduction is also performed in the cases of high order multiple pregnancy. There is increased impetus on transferring fewer embryos, preferably only one in younger women.

**Materials and Methods:** 186 women, who conceived following IVF/ICSI treatment participated in a questionnaire study regarding their knowledge and attitudes towards multiple embryo transfer, fetal reduction and multiple pregnancy.

**Results:** A majority of women said that they were aware of the complications of multiple pregnancy (90%) and preterm delivery (85%). Nevertheless, none of them opted for a single embryo transfer. A positive pregnancy test was more important to most women than the outcome of that pregnancy (74%). Fetal reduction did not pose any moral concerns to most women (67%). Anxiety about the safety of the remaining twins persisted throughout pregnancy (73%). Having twin babies did not affect the quality of life of most women (74%).

**Conclusion:** Indian women were similar with their western counterparts in desiring multiple embryo transfer in order to maximize their chance of getting a positive pregnancy result. The negative impact of twin or higher order pregnancy appears to be disregarded by the women prior to getting pregnant. The confidence of the treating physician to offer single embryo transfer also appears to affect the patients' choices.

**Keywords:** Knowledge, Attitudes, Multiple embryo transfer, Fetal reduction, Multiple pregnancy.

## INTRODUCTION

Millions of couples all over the world have gone through IVF/ICSI treatment. Many have fulfilled their dream of having a baby (ies). Some have faced the adverse consequences of this treatment, including multiple pregnancies, preterm deliveries and their associated complications. The success of IVF has been described as the birth of a term healthy single baby. Therefore, there is an increased impetus to opt for single embryo transfer especially for younger women,<sup>1</sup> which lowers the risk of preterm labor and delivery. This is inevitably associated with a lower pregnancy rates. The subfertile woman's understanding about these matters in India is yet to be published. We have done a questionnaire based study on knowledge and attitudes of women undergoing IVF regarding multiple pregnancy, multiple embryo transfer and fetal reduction.

## MATERIALS AND METHODS

One hundred and eighty-six women, who conceived following IVF/ICSI agreed to answer a questionnaire, which dealt with

the adequacy of pre-IVF counseling about multiple pregnancy, preterm delivery, fetal reduction and the quality of life following a multiple pregnancy. A copy of the questionnaire is provided below with the results. Those, who underwent fetal reduction (n = 42) in the last three years were also asked about their emotional status before, during and after the procedure. The questions were in the Yes or No format. Those, who needed additional explanation regarding these questions, were offered the same. The questionnaire was designed after doing a review of literature on the above mentioned topics. The women were told that they could choose not to answer any question, if they so desired. They were also invited to give their own comments, if they wished to. We evaluated each question on how many women answered the question and then proportion of those, who said yes or no to each question.

In our unit, we generally transfer three embryos for women less than 35 years and four for older women. We wished to know the patients' knowledge and attitudes about single and multiple embryo transfers and complications associated with such treatment.

## RESULTS

1. Were you counseled about multiple pregnancy as a complication of IVF prior to the commencement of treatment?

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Yes – 160, No – 18, Not responded – 8 (90% said Yes and 10% said No).

**2. If yes, did you know about the following complications of multiple pregnancy?**

- a. Preterm delivery  
Yes – 144, No – 26, Not responded – 16 (85% said Yes and 15% said No).
- b. Admission to the neonatal intensive care unit and costs.  
Yes – 114, No – 46, Not responded – 26 (71% said Yes and 29% said No).
- c. Poor outcome before 28 weeks of pregnancy.  
Yes – 120, No – 42, Not responded – 24 (74% said Yes and 26% said No).
- d. Risks of visual impairment, cognitive impairment, physical impairment or death in the new born period in preterm deliveries (earlier the delivery, higher the risk).  
Yes – 100, No – 60, Not responded – 263 (62% said Yes and 28% said No).

**3. If you were aware of the above complications, were you still willing to opt for a multiple embryo transfer?**

Yes – 150, No – 20, Not responded – 16 (88% said Yes and 12% said No).

**4. If you were not, would you have opted for a single embryo transfer inspite of the lower chance of getting pregnant?**

Yes – 26, No – 128, Not responded – 32 (17% said Yes and 83% said No).

**5. Were you counseled that higher order pregnancies (i.e. triplets, quadruplets, etc.) have a higher risk of the above complications than twins?**

Yes – 152, No – 26, Not responded – 8 (85% said Yes and 17% said No).

**6. Was getting pregnant more important at that point of time than the outcome of that pregnancy?**

Yes – 128, No – 46, Not responded – 12 (74% said Yes and 26% said No).

**7. Were you counseled about the possibility of fetal reduction in higher order pregnancies?**

Yes – 146, No – 30, Not responded – 10 (83% said Yes and 17% said No).

**8. Did you know that fetal reduction itself is an invasive procedure and carries a risk of 2 in 100 miscarriage at your center?**

Yes – 68, No – 106, Not responded – 12 (39% said Yes and 61% said No).

**9. Did you know that continuing a higher order pregnancy carried a higher-risk to the babies than the risk of fetal reduction?**

Yes – 126, No – 50, Not responded – 10 (72% said Yes and 28% said No).

**10. Did you feel that fetal reduction was the better option than continuing the higher order pregnancy?**

Yes – 126, No – 46, Not responded – 14 (73% said Yes and 27% said No).

**11. Did you have any significant moral concerns about fetal reduction?**

Yes – 64, No – 108, Not responded – 14 (37% said Yes and 67% said No).

**12. What is your opinion on termination of pregnancy (induced abortion) in general?**

- a. Justified in cases of failure of contraception.  
Yes – 32, No – 44, Not responded – 110 (42% said Yes and 58% said No).
- b. Justified is mother's life is at risk due to the pregnancy.  
Yes – 120, No – 10, Not responded – 56 (92% said Yes and 8% said No).
- c. Justified in case of major anomalies in the baby.  
Yes – 118, No – 8, Not responded – 60 (94% said Yes and 6% said No).
- d. Never justified.  
Yes – 18, No – 36, Not responded – 132 (33% said Yes and 67% said No).

**13. Once you know that you were pregnant with twins/higher order pregnancy, did you rejoice?**

Yes – 108, No – 24, Not responded – 54 (82% said Yes and 18% said No).

**14. After 10 weeks, when the prospect of fetal reduction was discussed, were you willing to go ahead with fetal reduction?**

Yes – 24, No – 16, Not responded – 146 (60% said Yes and 40% said No).

**15. At the time of fetal reduction, were there feelings of**

- a. Guilt.  
Yes – 6, No – 14, Not responded – 166 (30% said Yes and 70% said No).
- b. Anxiety about the safety of the remaining twins.  
Yes – 22, No – 6, Not responded – 158 (79% said Yes and 21% said No).
- c. Both  
Yes – 6, No – 12, Not responded – 168 (33% said Yes and 67% said No).

**16. During the subsequent antenatal visits and ultrasound scans, did you experience?**

- a. Guilt on account of having fetal reduction.  
Yes – 0, No – 14, Not responded – 172 (none of those, who responded experienced guilt).
- b. Anxiety about the safety of remaining twins.  
Yes – 22, No – 8, Not responded – 156 (73% said Yes and 27% said No).
- c. Both  
Yes – 0, No – 18, Not responded – 168 (none of those, who responded experienced guilt and anxiety).
- d. None  
Yes – 18, No – 0, Not responded – 168.

**17. Did your babies require admission to the neonatal intensive care unit?**

Yes – 28, No – 10, Not responded – 148 (74% said Yes and 26% said No).

**18. Did having twin babies affect your quality of life adversely?**

Yes – 10, No – 28, Not responded – 148 (26% said Yes and 74% said No).

**19. Which of the following do you think is more acceptable?**

a. To have multiple pregnancy following IVF/ICSI with its relatively higher chances of preterm delivery and residual disability in the babies.

Yes – 128, No – 6, Not responded – 52 (96% said Yes and 4% said No)

b. Negative pregnancy test following IVF/ICSI treatment.

Yes – 20, No – 28, Not responded – 138 (42% said Yes and 58% said No).

## DISCUSSION

IVF/ICSI treatment is generally preceded by gathering of information by the couples. This includes counseling and information booklets offered by the treating unit, other couples who have undergone treatment, second opinion from other IVF specialists, the internet, television and other media. However, there seems to be a disparity in understanding the implications of the complications following such treatment.

In our study, 85 to 90% women were aware of multiple pregnancy and preterm delivery as possible complications of IVF/ICSI treatment, but fewer (71-74%) knew about admissions to NICU (and the attendant costs) and poor prognosis before 28 weeks. This is unlikely because of inadequate counseling as an unbiased counselor does the initial counseling followed a doctor and nursing coordinator. This is an addition to the information booklet regarding this treatment. Fewer still were aware of specific complications like visual impairment, cognitive impairment, physical impairment and perinatal death.

A majority (81-83%) of respondents said that they would prefer to undergo multiple embryo transfer and not single embryo transfer. Hojgaard et al in their study found that 58% of nearly 400 respondents preferred to have a twin pregnancy and the reasons for the same were reportedly desire for siblings, positive attitude toward twins, and a wish to minimize physical and psychological stress through having as few IVF treatments as possible. They are of the opinion that obligatory single embryo policy would be in conflict with patient interests and wishes. The challenge consists in balancing clinical considerations with unbiased information on twin pregnancy, respecting patient's autonomy and enabling informed decision making.<sup>2</sup>

A similar finding was reported by Blennborn et al from Sweden that despite good information about the risks for complications with multiple pregnancies, many patients wish to have two embryos transferred. Spare embryos to freeze, and previous live birth were the strongest predictors of choosing

single embryo transfer.<sup>3</sup> These studies indicate that generally couples all over the world appear to favor multiple embryo transfers to single embryo transfer notwithstanding the risks associated with multiple pregnancies.

The choice of single vs multiple embryo transfer could also be influenced by the inherent nature of the person. Newton et al reported in their study that cautious patients, preferring transfer of fewer embryos, balance desires to maximize the chance of pregnancy with acceptance of risks associated with twins. Less cautious patients may be motivated by beliefs about the influence of age, desires for, and likelihood of twin pregnancy. Information about risks may affect these groups differently and diverse patient motivations may require tailored information to ensure informed consent.<sup>4</sup> However, in our series, not even a single patient opted for a single embryo transfer (SET) though they had an option to do so. This could also be due to the factor that the treating physicians were themselves not confident of offering a single embryo transfer to such couple. Van Peperstraten et al studied the attitudes IVF professionals regarding single embryo transfer and found that the most frequently mentioned barriers to elective SET use were suboptimal success rates associated with cryopreservation (96%), not seeing twin pregnancies as a complication (79%) and lack of a SET protocol (78%). Those doctors, who had their initial fertility training in university hospitals were more inclined to opt for single embryo transfer than others.<sup>5</sup>

A positive pregnancy test was more important for 74% of the respondents at the time of starting the treatment than the outcome of that pregnancy. This is similar to the observation made by Scotland et al that some women waiting for IVF treatment view severe child disability outcomes associated with double embryo transfer as being more desirable than having no child at all. Women embarking on IVF may be influenced more strongly by considerations of 'treatment success' rather than future risks to their offspring.<sup>6</sup>

Most women (83-85%) were aware that higher order multiple pregnancies carried a higher risk to the babies than a twin pregnancy and that fetal reduction was an option available to them in such cases. Surprisingly, only a few (39%) claimed to be aware of the invasive nature of fetal reduction. This probably reflects that counseling does not stress enough on the risks of fetal reduction, while offering it as a solution to multiple pregnancy. It also indicates that the women (and their husbands) did not read through the information booklet provided by the unit. There appears to be a selective assimilation of facts with a tendency to disregard or trivialize the negative aspects of the treatment and concentrating on the positive pregnancy test.

Most women were aware that higher order pregnancy carried a greater risk to the babies than a twin pregnancy and most of them felt that fetal reduction was a better option than carrying on with a higher order multiple pregnancy (72 to 73%). Sixty-seven percent said that they had no significant moral concerns about fetal reduction. This was similar to the study by Munks

et al from Portland, where 77% said that they would consider fetal reduction for higher order multiple pregnancies. Prochoice and prolife people are generally stable about their beliefs on fetal reduction before treatment and after conception.<sup>7</sup>

Interestingly, 58% women felt that the termination of pregnancy was not justified in failure of contraception while most felt it was justified in the case of risk to the mother's life or if the baby had major congenital anomalies. This reflects that most women do not consider fetal reduction as a trivial procedure and they are willing to go through it only to increase the safety to the remaining twins.

Most women, who underwent fetal reduction (70)% did not experience guilt at the time of fetal reduction. None of those, who felt a sense of guilt at the time of reduction felt the same way during subsequent antenatal visits. However, anxiety regarding the well-being of the remaining twins persisted throughout pregnancy.

Three fourths of the respondents said that having twin babies did not affect the quality of their lives adversely. Sydsjo et al have reported that the stresses associated with IVF treatment and becoming first-time parents of twins did not have a negative impact on the couples' appreciation of their relationship and parenthood as stated by both men and women.<sup>8</sup>

Ninety-six percent of those who responded preferred the risk of multiple pregnancy with its risks and complications to a negative result. This overwhelming desire for a positive result inspite of understanding the risks involved is echoed by studies in the western hemisphere as well.

In conclusion, increased psychological stress and societal pressure forces sub fertile couples to prefer multiple embryo transfers over single embryo transfer. A positive pregnancy test is more important than the outcome of that pregnancy to some women. Acceptance of fetal reduction and prochoice attitudes are similar in Indian and western women. A majority of Indian

women with good family support system do not complain of adverse quality of life following the birth of twins. There could also be a role of the doctors' confidence level regarding single embryo transfer and management of multiple pregnancy, which could influence the decision of the couples in these matters.

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