Effectiveness of Mind Body Intervention on Subfertile Females: An Approach to Accesses Oocyte Quality

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Abstract

Introduction: In recent times, there is a much greater emphasis on the physical causes of infertility so that psychological effects can be ignored. There are, of course, a number of physical and emotional factors that can induce infertility. Mind and body interventions are efficient in lowering psychological distress thereby increases the ART success rate, fetal outcome by improving the psychological and physiological stress. The purpose of the current study is to assess the relationship between effect of mind body intervention and serum cortisol level and oocyte quality.

Aim and Objectives: To study the effectiveness of mind body intervention on oocyte quality and serum cortisol level in subfertile females.

Materials and Method: This study is done in wardha test tube baby centre AVBRH (SAWANGI) WARDHA Relevant data on the demographics and treatment history as well as the indications for IVF treatment will be recorded. Serum cortisol level of all participant were analysed and then stimulated using a routine short antagonist protocol.

Observation and Result: From total recruited patient, one didn't attended intervention program at all. Four patients attended intervention program from 4 to 6 week in discontinuation manner. Eight patients attended up to 70% to 90% of intervention program and remaining 24 patients attended complete 10 week mind body intervention program. In group of 7 to 9 week intervention 6 patient out of 8 showed decrease in serum cortisol level. Patient who attended complete 10 weeks intervention they are showing significant decrease in serum cortisol level. From 40 patient, 24 attended complete 10 week mind body intervention, among them 16(66%) gave positive response to mature oocyte retrieval.

Discussion: In this research, a mind body intervention on subfertile females was created and to see their response to mature oocyte in IVF study. Study revealed that, there were very few studies examined the role of cortisol in relation to M II oocyte and finally clinical pregnancy outcomes. Two studies reported that pregnancy rates were enhanced by adopting the MBI. This is in support to our study.

Conclusion: This study concludes that, there is direct correlation of serum cortisol level and oocyte quality and Mind-Body intervention is key factor to improve oocyte quality.

Keywords: *Infertility, oocyte, cortisol.*

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Introduction

In recent times, there is a much greater emphasis on the physical causes of infertility so that psychological effects can be ignored. There are, of course, a number of physical and emotional factors that can induce infertility. Many infertile couples encounter conflict over the social significance of pregnancy and negative emotions, current medical research focuses on the diagnosis and treatment of infertility, the degree of psychological and social support is minimal. That may be caused by issues with either spouse and may be of a primary or secondary in nature. [1-3] study revealed that anxiety and, in particular, depression prior to IVF/ICSI therapy were positively correlated with adrenaline levels of urine during treatment. They also found an association of lower adrenaline at oocyte extraction with an increased risk of pregnancy.[4] Cortisol is a steroid hormone produced by the adrenal gland. It is the key hormone in stress and fight or flight response. It is a well-established stress biomarker and is controlled by adrenocorticotropic hormone from the pituitary gland. Its levels can be affected by physical stress, emotional stress, and illness. In case of high level of stress, serum cortisol value is bound to increase, thus it is a reliable indicator in patients undergoing stressful events in life.[5-7] A series of studies have looked at stress during the IVF cycle.[8] But the role of anxiety and stress and the effects of psychological stress on the outcome, it is important to examine these dimensions more closely in women undergoing IVF therapy.[9] Mind and body interventions are efficient in lowering psychological distress thereby increases the ART success rate, fetal outcome by improving the psychological and physiological stress.[10] The purpose of the current study is to assess the relationship between effect of mind body intervention and serum cortisol level and oocyte quality. The perception that psychological stress may prevent a woman from attaining and maintaining a pregnancy has become widely accepted. Mind-body interventions (MBIs) may be an effective tool to help women manage the demands of infertility diagnosis and treatment.

Keywords: Cortisol, Mind-body interventions, IVF, oocyte quality

Aim and Objectives: To study the effectiveness of mind body intervention on oocyte quality and serum cortisol level in subfertile females.

Materials and Method

This study is done in wardha test tube baby centre AVBRH (SAWANGI) WARDHA Relevant data on the demographics and treatment history as well as the indications for IVF treatment will be recorded. Serum cortisol level of all participant were analysed and then stimulated using a routine short antagonist protocol.

Infertile Patients:

↓

Serum cortisol level

1st OPU

↓

Anlysis of oocyte

↓

After 1 month of recovery

↓

8 to 10 week mind body intervention

↓

Serum Cortisol level

↓

2nd OPU

↓

Analysis of oocyte quality

Sample Size: 40 sub fertile female patient.

Inclusion Criteria: Couples suffering from primary and secondary infertility and registered for two

1. OPU cycle
2. Patient from age group 25-35.
3. Patient with normal Anti-Mullerian Hormone

Exclusion Criteria:

1. Patients registered for single IVF cycle.
2. Patients having AMH <1.5
3. Patients not fit for IVF having viral infections like HIV, HbsAg etc.
4. Patients who want to undergo fresh embryo transfer.

Observation and Result

From total recruited patient, one didn't attended intervention program at all. Four patients attended intervention program from 4 to 6 week in discontinuation

manner. Eight patients attended up to 70% to 90% of intervention program and remaining 24 patient attended complete 10 week mind body intervention program. [Table 1, Pie Diagram 1].

Table .1: Duration wise intervention distribution of patient number

Intervention Period Group (Weeks)	No of patient
0	01
01-03	03
04-06	04
07-09	08
10	24
Total	**40**

Patient who attended 4 to 6 week intervention program among them 50% showed positive response in terms of decrease in serum cortisol level. In group of 7 to 9 week intervention 6 patient out of 8 showed decrease in serum cortisol level. Patient who attended complete 10 weeks intervention they are showing significant decrease in serum cortisol level. [Table 2, Pie Diagram 2].

Table. 2: Week wise intervention distribution of patients and their response in terms of change in Serum cortisol value

Intervention Period Group (Weeks)	No of patient	Number of Patient with positive response	Number of Patient with Neutral response	Number of Patient with Negative response
0	01	00	00	01
1-3	03	00	01	02
4-6	04	02	00	02
7-9	08	06	01	01
10	24	17	01	06
Total	**40**	**25**	**03**	**12**

Patient who attended 4 to 6 week intervention they showed slightly positive response in terms of mature oocyte retrieval. In group of 7 to 9 week intervention 50% patient showed positive response and 25% gave negative and neutral response respectively. From 40 patient, 24 attended complete 10 week mind body intervention, among them 16 (66%) gave positive response to mature oocyte retrieval. [Table 3].

Table 3: Week wise intervention distribution of patients and their response in terms of no of retrieved metaphase II oocyte

Intervention Period Group (Weeks)	No of patient	Number of Patient with positive response	Number of Patient with Neutral response	Number of Patient with Negative response
0	01	00	00	01
1-3	03	00	00	03
4-6	04	01	01	02
7-9	08	04	02	02
10	24	16	03	05
Total	**40**	**21**	**06**	**12**

It is observed that after mind body intervention 26 patient shows decreased serum cortisol level and along with them 20 patient also shows improved in their M II oocyte retrieval. Correlation of decrease in Serum cortisol level and M II oocyte retrieval after Mind Body intervention. [Table 4, Pie Diagram 3].

Table 4: Correlation of decrease in Serum cortisol level and M II oocyte retrieval after Mind Body intervention

Number of patient decreased serum cortisol level	26
Number of patient increased MII oocyte retrieval	20
Number of patient increased serum cortisol level	11
Number of patient decreased MII oocyte retrieval	15
Number of patient retained same serum cortisol level	03
Number of patient retained same no of MII oocyte retrieval	05

Discussion

In this research, a mind body intervention on subfertile females was created and to see their response to mature oocyte in IVF study. Study revealed that, there were very few studies examined the role of cortisol in relation to M II oocyte and finally clinical pregnancy outcomes.[11,12] literature also reported that there is no significant differences in cortisol between pregnant and non-pregnant groups report data derived from blood, saliva, or urine sampling.[9,13] The systematic review described two non-blinded RCTs that looked at the effect of MBI on infertile women (N = 566). Outcome results for both non-blinded RCTs was incomplete due to high attrition rate.[14] the study revealed that the impact of MBI on the marital behavior of couples cannot be concluded with respect to effectiveness in pregnancy outcomes.[15] Two studies reported that pregnancy rates were enhanced by adopting the MBI. [16,17] this is in support to our study. Overall, it is fair to believe that anxiety, depression and fertility-specific quality of life have improved over time in tandem with MBI for women undergoing IVF treatment.[18] Outcome of this research i.e. analysis of serum cortisol provides a good parameter for the assessment of the oocyte quality and further on IVF outcome.

Conclusion

This study concludes that, there is direct correlation of serum cortisol level and oocyte quality and Mind-Body intervention is key factor to improve oocyte quality. This small scale study gives favorable results. In future, large scale samples if studied, will be a revolution in the field of mind body treatment and assisted reproductive technique for the women facing problem of lesser and immature oocyte retrieval.

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Conflict of Interest: Nil.

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