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The Relationship of Varicocele and Mental Health

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Abstract

Objective. Observation of behavioral, psychotic, and mood abnormalities in varicocele patients necessitated us to determine the relationship of varicocele disorder and mental health of patients. **Methods and materials:** One hundred and forty-three primary infertile patients with clinical varicoceles at the age of 23 to 42 years ruled in this case-control study between April 2011 and April 2013, at our urology clinics in Kerman –IRAN. They are arranged in three groups according their situations, group one (n= 45, who are waiting to operation), group two (n=51 patients who are infertile after operation), group three (n=47 patients had successful pregnancy after operation), and a 50 age matched healthy men as control. After explaining of study aim and receiving written consent, they completed The Modified Mini-Mental State Test (MMMST) questionnaires. All data about their demographic characteristics and (MMMST) questionnaires were analyzed statistically by SPSS-18 software. **Results.** The comparison of three groups data, it showed all varicocele groups had mental health abnormalities inspite control group, but between them the post operative pregnancy negative group had severe mental health status ($p<0.001$). **Conclusion.** Mental disorders are often associated with chronic diseases as infertility of varicoceles, and may affect their treatment processes. So the evaluation and treatment of any mental disorders in these patients will encourage them to cooperate and continue hopefully treatment processes.

1. Introduction

According World Health Organization (WHO) reports 8 - 12% of couples in the whole world are infertile, and the seeking for infertility treatment is increasing. Infertility is a complex stressor that necessitates many emotional assessments, it affects an estimated 10–15% of couples of reproductive age, so there will need many emotional assessments [1, 2]. This psychological problem may bother them at throughout of life, particularly when it is chronic and long-lasting, even when the initial chance of childlessness has passed[3]. Infertility and its treatments and psychiatric outcomes are related in a multidisciplinary way[4]. The Mental Health disorders may cause fertility problems [5]. And also may reduce the success rates of any related treatment [6].

Although some study mentioned that infertile women have experienced more distress, health complaints, mood disorders, anxiety, depression and complicated grief than men, both before and during infertility treatments [7], but Depressive symptoms and anxiety have, however, been more prevalent among infertile men compared to their fertile controls and/or the general population [8].

About 8% of men in reproductive age seek medical assistance for fertility-related in the world and from them 1%–10% have a condition that affect on their fertility potential and among them varicocele alone Includes 35% of these patients[9]. The incidence of varicocele is 15–20% (all grades) in the general population, 35%-50% with primary

infertility and is as high as 70%-80% in men with secondary infertility (inability to conceive after giving birth to at least one child), [10, 11]. With recent advances in diagnostic techniques and widespread application of scrotal ultrasonography and color Doppler imaging, varicoceles are being reported in up to 91% of sub-fertile cases, most of whom were previously regarded as having idiopathic aetiology [12].

A number of theories have been proposed to explain the observed pathophysiology of varicoceles include hypoxia and stasis, testicular venous hypertension, autoimmunity, elevated testicular temperature, reflux of adrenal catecholamines, and increased oxidative stress, they also have increasing effects by duration on semen and infertility [13,14].

A varicocele was defined as an abnormal tortuosity and dilation of the veins of the pampiniform plexus and it is a chronic and almost congenital disorders, and although varicocele is a known treatable male infertility cause between male factor infertility, but there are many other simultaneous factors that affect on varicocelectomy outcomes and reduces the pregnancy rates (the highest rate is 42% in microsurgery varicocelectomy) [15], and On the other hand, some researchers believe that most men with varicoceles are able to father children [16], so there are a lot of debate and controversy in literatures about varicocelectomy outcomes, and these information may naturally effect such patients emotional status [17, 18].

In a study about mental health status of infertile patients with varicocele in relation of infertility, the prevalence of anxiety and depression in them and control group were 61.32%, 37.73% and 13.79%, 6.90% respectively, they are significantly higher in the varicocele patients [19]. The purpose of this study is to examine the mental health of men with varicocele and having experienced infertility. We have a comprehensive approach to global mental health by assessing the global cognitive status and severity of mental health in infertile men with varicocele, by Modified Mini Mental (3MS) that perceived health and quality of life. To our knowledge, this is the first to examine the association between mental health and infertility consequence of varicocele using a simple structured diagnostic mental health interview with several rating scales.

2. Methods and Materials

From 176 primary infertile patients with clinical varicoceles in age ranges of 23 -42 years 143 patients ruled in this case-control study from April 2011 to April 2013, at our urology clinics in kerman – IRAN, the preoperative

varicocele diagnosis was made with physical examination findings and supported with colour Doppler ultrasonography. We have excluded infertile men who had other infertility etiologies as congenital, genetic or unexplained causes or wives infertility, known mental health problems and or their wives were older than 35 years old. They are arranged in three groups according their situations, group one, 45 patients (waiting for the operation), group two 51 (have been operated but were infertile), group three, 47 patients (with successful couple pregnancy), and a 50 age matched healthy men as a control. After explaining of study aim and receiving written consent, we interview and filled mental health quaternaries for them. The mental health tests which have used in this study for all groups and their wives include 15 mental health questions the same as The Modified Mini-Mental State (3MS) Test – Version A Australian [20]. This mental health tests translated and suited for Iranian population. The Modified Mini-Mental State (3MS) test has been suggested to improve the usefulness of the popular Mini-Mental State Examination and in Comparison with the 3MS has more standardized administration and more graded scoring; it also evaluates broader varieties of cognitive domains and assesses a wider range of difficulty levels. The 3MS can demonstrate more information about the subject's cognitive status than the MMSE; and also it is more sensitive than the MMSE in detecting within-individual changes over time.

The stages of this test are based on total score ranges, from 0 – 100, with higher numbers indicating normal, < 79: cognitive impairment, < 48: severe impairment. all data about their demographic characteristics and mental health questionnaires by SPSS-18 software statistically analyzed.

3. Results

Of the 176 infertile with clinical varicocele men who allocated to this study from April 2011 to April 2013, 23 were lost to follow-up, and 153 (86.93%) met the inclusion criteria and were followed and their data with 50 healthy men as a control group analyzed. The mean age of these men was 30 ± 10.7 (range 23–42) years and the mean age of their female partners was 25.4 ± 3.6 (range 20–34) years.

The median infertility interval in study groups was 45 (range 15–70) months. No significant differences between the groups were found in reporting at least one chronic illness.

The data comparison of three groups showed all varicocele groups had mental health abnormalities inspite control group, but between them the post operative pregnancy negative group had severe mental health status ($p < 0.001$), (table 1).

Table 1. Mental health status of varicocele infertile patients in comparison to control group.

Groups	Normal status	Cognitive impairment	Severe mental impairment
Control	37 (74%)	11(22%)	2(4%)
Pre-operation	10(22.22%)	20(44.44%)	15(33.33%)
Post-op.(conception-)	7(13.72%)	20(39.21%)	24(47.05%)
Post-op.(conception+)	25(53.19%)	12(2.12%)	10(21.27%)

After adjusting for age, BMI, education, income and smoking, all groups of infertile participants and control had an increased, but non-significant risk for many of studied mental disorders. Mental disorders of the wives of all groups also assessed the pre operation and post operation groups wives had significant mental health problems.

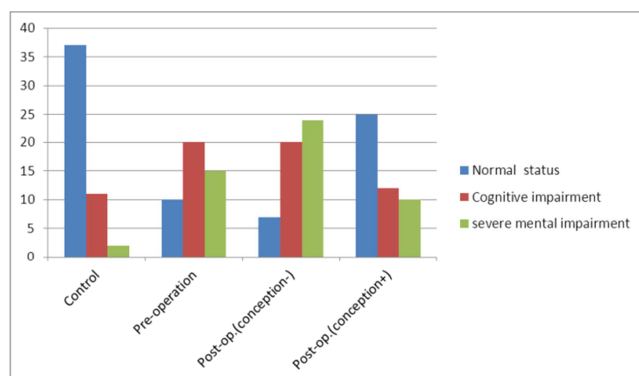


Fig. 1. Mental health status of varicocele infertile patients in comparison to control group.

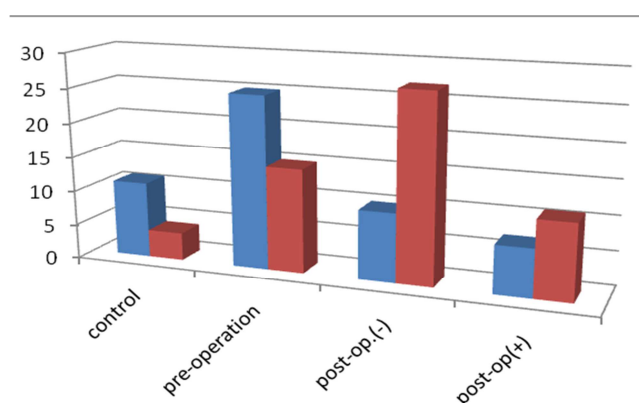


Fig. 2. The effect of varicocele infertility, mental consequence on their wives.

4. Discussion

This research has used to investigate the psychological consequences of being diagnosed as infertile with varicocele and being a member of an infertile couple and we excluded those couples whose wives had known mental health disorders in the evaluation of psychological interviews alongside their husbands. The most recent studies have focused only on women; however, some have assessed both partners in couples being investigated for fertility difficulties, and only a small group has focused specifically on the experiences and needs of men [21]. In recent researches many dimensions of psychological functioning after diagnosis have been investigated, including the consequences for mood, identity, self-esteem and quality of life [22]. Some reports also examined the interactions between mood and personality variously conceptualized as coping style, capacity for emotional self-regulation, tendency to appraise situations as stressful and

locus of control [23]. Most studies have used self-report questionnaires including both standardized psychometric measures and study-specific questions [24]. Our study opposite of all these investigations that have elucidated the consequences of infertility on the quality of relationships between intimate partners with particular attention on the sexual aspects and or focused on the emotional and communicative aspects of these relationships, we in a case control study focused on male global psychological consequences of infertility due to a common and well known cause male infertility by direct interview and simple relied questionnaire. In addition the simplicity of interview course with simple questionnaires as that we used may be have well accepted by these patients.

Naturally the emotionally affected men in infertile have a more deleterious effect on family mental health, as in our study it has shown, pre varicocelectomy and post unsuccessful operation groups had more psychological infertility consequences on wives than others and in a way our results like the findings of Nachtigall and colleagues whose evaluated 36 infertile volunteer couples that seeking infertility treatment by using snowball sampling and in-depth interviews. They assessed their emotional responses variations by sex-specific diagnoses and they showed that the men with known male factor infertility experienced more 'negative emotional responses', including a sense of loss, stigma and reduced self-esteem, than men whose wives were infertile or who were in couples in which fertility difficulties were unexplained. They concluded that men's responses to infertility approximated those of women only when the infertility was attributable to a male factor. In other research about mental health status of infertile patients with varicocele that performed in China by Niu JR and colleagues, they also found that Infertility patients with varicocele have psychological disorders with high prevalence rates of anxiety among them.

Mental health disturbances and psychological consequence of infertility also may indirectly influence on fertility of couples including cigarette smoking, alcohol use, decreased libido and body mass index or in some through induced depression could directly affect infertility involve the physiology of the depressed state such as elevated prolactin levels, disruption of the hypothalamic-pituitary-adrenal axis, and thyroid dysfunction.

Based on G. Entesar Foumany and *et al.*, and other studies, there was a meaningful inverse correlation between meta-cognitive beliefs and mental health, so in this study for more reliability and simplicity of MMMST questionnaire, we experienced it instead of ordinary Questionnaires of mental health assessing methods [25,26].

So we recommended that for better treatment and cooperation of infertile couples in particular those with male factors, it is necessary before any specific treatments they must be evaluated for their mental health statuses and treatment if any infertility psychological consequences.

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