Psychological aspects of sexual disorders in patients with testicular cancer

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ABSTRACT

Background: Testicular cancer (TC) makes up 2% of all tumors in men in general and is the most common tumor in males between 15 and 35 years of age. The disease and its treatment have important repercussions on different aspects of patient sexuality.

Methods: A review of the literature reported on in MEDLINE, PsycINFO, CINAHL, MedicLatina, and Psychology & Behavioral Sciences Collection during the time period of 2000 to 2011 was carried out. It covered the psychological aspects associated with orchiectomy (ORC), testicular prostheses, infertility, and sexual dysfunction in the TC patient.

Results: Ten original studies were found, the majority of which were carried out on patients during follow-up. An association between sterility and sexual dysfunction was identified with clinical presentations of anxiety and depression, as well as feelings of shame, loss, and distress as a result of ORC.

Conclusions: To develop psycho-oncologic treatment programs aimed at patients with problems in their sexual

RESUMEN

Antecedentes: El cáncer de testículo (CT) constituye el 2% de la totalidad de las neoplasias en el sexo masculino, siendo la neoplasia más común entre 15 y 35 años. Dentro de las principales repercusiones de la enfermedad y su tratamiento están diversos aspectos sexuales.

Métodos: Se realizó una revisión de la literatura reportada en MEDLINE, PsycINFO, CINAHL, MedicLatina Psychology and Behavioral Sciences Collection, en el periodo de 2000 a 2011 sobre los aspectos psicológicos asociados a la orquitectomía (ORQ), prótesis testicular, infertilidad y disfunción sexual en el paciente con CT.

Resultados: Se identificaron 10 estudios originales, la mayoría de los estudios fueron realizados en pacientes en seguimiento. Se identificó una asociación entre esterilidad y disfunción sexual, con sintomatología ansiosa y depresiva. Así como sentimientos de vergüenza, pérdida y malestar ante la ORQ.

Conclusiones: Desarrollar programas de tratamiento psico-oncológico dirigidos a pacientes con problemas en su
lives, serving as a beneficial alternative for improving the quality of life in this patient population.

**Keywords:** Testicular cancer, sexual dysfunction, infertility, psychological aspects, Mexico.

**Palabras clave:** Cáncer testicular, disfunción sexual, infertilidad, aspectos psicológicos, México.

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**INTRODUCTION**

Cancer is one of the main public health problems in Mexico and therefore the attention given to the psychological factors associated with this disease and its treatment is important for the affected patient population.

Testicular cancer (TC) makes up 2% of all the tumors in men and is the most common tumor in males between 15 and 35 years of age.\(^1\)

This health problem and its surgical treatment (orchiectomy [ORC]), chemotherapy (CT), and/or radiotherapy (RT) can have repercussions of a sexual nature for the patient.\(^2\)

It is frequently seen in clinical practice that different sexuality disorders arise or are exacerbated in the patient due to the disease itself (type and location) or to the antitumor treatments received.\(^3\)

Common sequelae that present in TC patients are sexual dysfunction and infertility and a commonly performed procedure is ORC.\(^4-6\)

The testes are associated with feelings of strength and potency, and the possibility of a health problem involving them appears to have a negative affect on the patient’s concept of his masculine identity, related to sexual dysfunction and sterility.\(^2,6,7\)

**METHODS**

A review of the literature reported on in MEDLINE, PsycINFO, CINAHL, MedicLatina, and Psychology & Behavioral Sciences Collection within the time frame of 2000 to 2011, on the psychological aspects associated with ORC, testicular prostheses, infertility, and sexual dysfunction, was carried out.

Articles with the following criteria were included: 1) quantitative or qualitative methodology, 2) patients receiving oncologic treatment (any type or combination of treatments) or survivors, and 3) the psychological aspects associated with ORC, prostheses, infertility, and sexual dysfunction had to reflect the article’s aspects of interest.

**TESTICULAR CANCER**

TC makes up 2% of all tumors in men and is the most common tumor in males between 15 and 35 years of age. More than 95% of these neoplasms are germ cell tumors.\(^1,8\)

In Mexico, the 2001 Histopathologic Register of Malignant Tumors documented 1,186 cases, representing 2.4% of the tumors in men, and despite the probability of cure, 299 deaths were registered in 2001.\(^9\)

Likewise, the Instituto Nacional de Cancerología reports that testicular tumor is in fourth place for tumors in general and in first place for tumors in men (3.9% with 757 cases).

An important aspect of this disease is the fact that it is diagnosed in young men (under 19 years of age). It is number one in the age groups under 19 and between 20 and 29, and in the 30 to 39-year-old group.\(^10\)

Some of the risk factors for developing TC are young age, ethnicity (with a 4:1 ratio of Caucasians to blacks), a past history of cryptorchidism, testicular atrophy, and infertility. The most common clinical manifestations are an increase in volume, pain, and hardening of the scrotum.\(^11,12\)

Histologically, germ cell tumors are divided into two main types: pure seminoma and nonseminoma.\(^13\)

TC is a highly curable disease with a survival rate of up to 95% in its early stages.\(^1,14\)

Patients with TC have a long life expectancy and so the long-term effects on health and quality of life are important objectives.\(^15\)
Because the majority of TC patients are young, sexual and reproductive repercussions are among the most important.4

PSYCHOLOGICAL ASPECTS ASSOCIATED WITH ORC AND TESTICULAR PROSTHESSES

TC and its treatments not only interfere with the anatomy and physiology of the reproductive tract, but they also have an impact on the individual's sexuality, sexual functioning, body image, self-perception of sexual attractiveness, and masculinity.16

As a central therapeutic procedure in this type of tumor treatment, ORC can affect sexual functioning by damaging the vascular supply or the pelvic innervation by reducing circulating hormonal levels or by directly harming the genitals.17

In this sense, the absence of testes can be a psychologically stressful condition for certain patients18 and men have described this loss as an extremely awkward and embarrassing experience.19

The difficulty this cancer implies for the young man and the symbolic nature of the diseased organ, together with the fact that the removal of a testis is not only the elimination of an anatomic structure, but also the extirpation of an organ that is a signifier of masculinity, virility, and normalcy, can have a psychological influence on the presence of other disorders such as sexual dysfunction.2,5

The implantation of a testicular prosthesis as an esthetic alternative is an option. In this regard, Adshead et al. reported that in a group of patients that received an implant, 27% were unsatisfied with the esthetic results they considered to be regular or bad, due to the fact that neither the size of the implant nor the attachment to the base of the scrotum were adequate.20

In a similar group, Xylinas reported that 96% of the patients felt that implantation was satisfactory, whereas the unsatisfied group complained of inadequate form, size, and temperature. Finally, 80% of the patients felt that their sexual activity remained unchanged.21

In a group of survivors, Yossepowitch found that 77% of them felt that the prostheses were adequate, even though they reported dissatisfaction in relation to interference with physical exercise, sexual activity, and the high position of the scrotum.22

Skoogh et al. carried out a study on survivors and reported that 32% of the patients that had undergone ORC expressed feelings of shame and uneasiness associated with the loss of a testis. Those patients that had not been offered a prosthesis were reported to have a greater feeling of loss and distress or a higher degree of shame than those who had been offered a prosthesis but had refused having the procedure.23

Therefore when testicular loss is involved, it is essential to inform the patient of the esthetic option of testicular prostheses. Such an alternative could help the patient better deal with the process of loss and the possible secondary effects or distress associated with dissatisfaction in certain patients.16

PSYCHOLOGICAL ASPECTS ASSOCIATED WITH INFERTILITY

Infertility is the absence of conception during the last 12 months in which no form of contraceptive protection was used during the sexual relations of that period.24

It is a common problem in TC patients because tumor treatment can interfere with the anatomic and physiologic cellular processes and the behavioral or social processes that contribute to normal reproductive function.25,26

Spermatogenesis can be affected in patients by acquired immunodeficiency states and a history of cryptorchidism. In addition CT and RT treatments can contribute to the development of azoospermia.27,28

In this context, the probability of recovering the maximum spermatogenic function cannot be reached until 2-3 years after treatment completion, and this is also influenced by patient characteristics such as age, oligospermia severity prior to treatment, and the accumulated CT dose.29,30

Azoospermia still presents in approximately one fourth of the patients after treatment, and so the medical team must orient the patient with TC as to options for having children. This should include information about sperm banks, if this is a viable alternative for the patient.1

Different studies have shown that infertility is an important predictor of psychosocial results in a group of male cancer patients.30

Green et al. in a study on TC survivors, indicated that the most widely reported emotional reactions to infertility were anger and depression. Young men who were not aware that their fertility could be in danger and/or now considered the possibility of paternity to be an important subject in their lives, expressed these emotions more.31

Thus it is important to develop intervention programs that manage to more adequately deal with the psychological symptoms associated with sterility in order to offer patients better quality of life.32
PSYCHOLOGICAL ASPECTS ASSOCIATED WITH SEXUAL DYSFUNCTION

According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (MSD-IV TR) “sexual dysfunctions are characterized by altered sexual desire, by psycho-physiologic changes in the sexual response cycle, and by the provocation of distress and interpersonal problems”. In men these include sexual desire disorders (hypoactive sexual desire, sexual aversion disorder), sexual excitation disorder (erection disorder), orgasmic disorders (male orgasmic disorder, premature ejaculation), sexual disorders due to pain, sexual dysfunction caused by medical disease, substance-induced sexual dysfunction, and non-specific sexual dysfunction.33

The problems of sexual dysfunction can occur as a result of any aspect of cancer and its treatment.3 Sexual function is sensitive to the effects of physical as well as emotional trauma and this is particularly relevant in the case of patients whose cancer affects the genitals.34 It has also been suggested that sexual dysfunctions are related to treatment intensity and modality.4

Smith and Babaian pointed out that the sequelae of certain cancer treatments, in virtue of their systemic action, affect three aspects of male sexuality: desire, physical function, and cytokinetic gonadal processes.35

Sexual dysfunction in TC patients has been reported to last a little over two years after treatment, and can vary depending on biological or psychological causes or the combination of the two.3 Other authors state that sexual dysfunction can improve within a time frame of six months to three years after treatment.36-38

For all these reasons, it is indispensable in the case of the TC patient to consider the psychological function as a process that enables the interaction of emotional stress and sexual dysfunction to be identified.39,40

Joly et al. demonstrated modification in sexual activity, reduced sexual satisfaction and sexual desire, fewer professional plans, and greater economic difficulties in a group of survivors compared with controls. The survivor group believed that the collection of data could help prevent psychosocial difficulties for future patients in the course of their treatment. The authors concluded that the deterioration of sexual activity and fertility are a principal long-term sequela.41

Some authors have found a lower level of sexual satisfaction in survivor groups and their partners than in the reference groups, concluding that TC appears to have a negative effect in relation to the sexual satisfaction of couples. The survivors that established a relationship after treatment completion appeared to be a vulnerable group and their sexual satisfaction was lower than that of the men in the reference group and survivors that that were in a relationship at the time of treatment.42

In a group of survivors, Dahl et al. reported that there was greater clinically significant anxiety symptomatology in those individuals that complained of more sexual problems and concern about sterility.

In a group of 20 patients, Alcántara, Jiménez, Diez and Alvarado identified a high correlation between erectile dysfunction and anxiety (moderate and severe) and so the authors concluded that it was very important to create prevention programs and integral treatment channels that would be able to control symptoms in this group of patients, such as the anxiety associated with sexual dysfunction, and thus improve their quality of life.32

This concurs with the results of reports by Heidenreich et al. and Ricker et al. who found that problems of sexual dysfunction were frequent and associated with anxiety regarding fertility, with fatigue, and with depression.37,40

White commented that in this type of patient psychological problems present that include a poor body image and loss of self-esteem and the consequential problems of sexual functioning.43

The possible repercussions in sexual functioning, along with rehabilitation options, should be explained to the patients from the very beginning.16

There is a lack of adequate information for patients about the possible repercussions on sexual function derived from cancer and its treatment.38

This information can help the patients have both a certain sense of control over their sexual functioning and an informed awareness of their sexual rights, concerns, and losses.16

The reports of the studies on sexuality and sexual functioning in TC patients after treatment have identified three types of loss of sexuality: physical, psychological, and sociocultural.37

RESULTS

Ten original studies were identified, the majority of which were cross-sectional designs conducted on survivors. Ninety per cent were foreign publications.

The findings derived from the quantitative focus, suggest the presence of feelings of loss, shame, or distress associated with ORC, an acceptable degree of satisfaction with testicular prostheses, a significant association between infertility and sexual dysfunction with clinical presentations of anxiety and depression,
### Table 1. Characteristics of the consulted studies.

<table>
<thead>
<tr>
<th>References</th>
<th>n</th>
<th>Participant characteristics</th>
<th>Design and methodology</th>
<th>Instruments*</th>
<th>Results*</th>
<th>Conclusions*</th>
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<tr>
<td>Carpentier et al 2011</td>
<td>21</td>
<td>Young testicular cancer survivors</td>
<td>Qualitative</td>
<td>Semi-structured qualitative interview</td>
<td>Four aspects were identified with respect to the impact of testicular cancer: shame, feeling different from others, and to receive information about the oncologic disease</td>
<td>These components are relevant in sexual and loving relationships. The testicular cancer survivors would benefit from the development of personalized interventions focused on improving these aspects</td>
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<tr>
<td>Yossepowitch et al 2011</td>
<td>98</td>
<td>Survivor patients, 87% received prostheses</td>
<td>Crosssectional</td>
<td>Survey conducted by telephone</td>
<td>77% found the prostheses adequate. Dissatisfaction was related to the consistency of the prosthesis (70%), interference with physical and sexual activity (15%), and its position in the scrotum (39%)</td>
<td>The majority of the patients with prostheses reported them as adequate, but the dissatisfied patients associated their complaints with the consistency of the prosthesis and interference with physical and sexual activity</td>
</tr>
<tr>
<td>Skoogh et al 2011</td>
<td>960</td>
<td>Testicular cancer survivors 32% of whom underwent orchiectomy</td>
<td>Crosssectional</td>
<td>Questionnaire</td>
<td>The 32% of patients that underwent orchiectomy reported shame and uneasiness. Patients that were not offered prostheses reported a greater sensation of loss (RR: 2.0, 95%CI: 1.3-3.0) and a greater degree of shame (RR: 2.0, 95%CI: 1.3-3.2)</td>
<td>Feelings of shame, uneasiness, and loss were frequent in the patients that underwent orchiectomy and were more elevated in the group that had not been offered a prosthesis</td>
</tr>
<tr>
<td>Tuinman et al 2010</td>
<td>219</td>
<td>Survivors and their partners</td>
<td>Prospective</td>
<td>International Index of Erectile Function, scale of depression from the Center for Epidemiologic Studies (CES-D)</td>
<td>Depressive symptoms were higher prior to treatment and predicted sexual function (p&lt;0.05). Orgasmic function, overall satisfaction and total sexual functioning decreased before and after chemotherapy treatment and rose at the one-year follow-up (p&lt;0.05)</td>
<td>Sexual functioning fluctuated during the first year after treatment. Depressive symptoms were identified as risk factors for long-term sexual dysfunction. Bachelors reported more problems and so it is suggested that they need more information and orientation about their sexuality</td>
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<tr>
<td>Xylinas et al 2008</td>
<td>58</td>
<td>Testicular cancer survivors with testicular prostheses</td>
<td>Crosssectional</td>
<td>Questionnaire</td>
<td>96% of the patients said the prostheses were adequate. 5% said that their body image was worse before the operation. 26% were dissatisfied in relation to form, size, and temperature of the implant</td>
<td>Testicular implants are well accepted even though some of the reasons for dissatisfaction were their characteristics</td>
</tr>
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and in some cases economic problems and a decrease in professional plans. The qualitative focus suggests feelings of shame and of being different after testicular loss, worry in relation to self-image, threatened masculinity, and reactions of emotional anger and depression when faced with the prospect of infertility, principally in the younger patients (Table 1).

### DISCUSSION

In Mexico, the number of studies on the psychological aspects associated with sexual disorders in patients with TC is still scarce, unlike the large number of foreign literature that is available on the subject.

The different effects of treatment on sexual activity turn its psychological evaluation into a complex problem.

Patients that receive information about sexual disorders should receive counseling or attention on the part of their attending health team, and in its absence, be referred to the indicated specialist. Patients will be greatly benefited by this. However, this does not often occur in the patient/doctor interaction during consultation visits.

It is important to note that patients usually tend not to express their concerns about their sexuality to their doctors out of embarrassment, the fear of being criticized or rejected, out of morbidity, and for considering it to be
CONCLUSIONS

The following conclusions of the present review are:

In Mexico there are very few studies on the psychological aspects associated with sexual dysfunction and infertility in patients with TC.

The different effects of TC treatment on fertility and sexual functioning make its psychological evaluation a complex problem.

The reports of studies on sexual functioning in TC patients after treatment identify three types of loss: physical, psychological, and sociocultural.

Patients may present with concern about and repercussions in their sexual and reproductive functioning, but they often feel too ashamed to ask for information.

The younger patients who have not yet had children may present with greater psychological morbidity.

It is essential to develop programs of psychological attention for those TC patients that present with altered sexual activity.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

FINANCIAL DISCLOSURE

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