

# Evaluation of Erectile Function and Mood Changes among Male Patients with Hansen's disease

Original  
Article

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## ABSTRACT

**Purpose:** To evaluate evaluation of the erectile function and mood changes in male patients with Hansen's disease (HD).

**Methods:** this study was conducted on forty males (40) confirmed patients with Hansen's disease were enrolled in this research., the All patients were subjected to the underwent the following: full history taking, International index of erectile function (IIEF-5), Beck anxiety scale and Beck depression scale.

**Results:** About 77.5% of our patients had erectile dysfunction, and 87.5% of patients showed anxiety disorders. while While 52.5% of patients showed depressive disorders and, 27.5% of patients had abnormal free testosterone levels. There was A high negative significant correlation revealed between IIEF-5 score and deformity grading, but with there was no significant association between duration or type of leprosy and psychiatric disorders. The results showed significant negative correlation between IIEF-5 and Beck depression inventory. But no statistical significant difference regarding free testosterone level (p-value=0.109) was found between erectile dysfunction (ED) group and non ED group.

**Conclusion:** Erectile dysfunction, anxiety and depression are very common in among patients with Hansen's disease. and such problems are related to level of deformity not to type or duration of disease and not related to testosterone level. This finding could be of key importance for the clinical practice because it could modify the current management of patients with Hansen's disease.

**Key Words:** Anxiety, deformity, depression, Hansen's disease, leprosy, IIEF score, sexual dysfunction

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## INTRODUCTION

Leprosy, one of the most chronic tropical diseases, is still prevalent in certain parts of the world, particularly India and South America. It acts as a unique psychosocial stressor for the social stigma associated with it. Although it was renamed Hansen's disease, the associated prejudice and social stigma are thought to remain obstacles to its eradication<sup>[1]</sup>.

Many studies revealed that testicular affection with leprosy occurs mainly in the lepromatous type<sup>[2]</sup>. Not all patients complaining of diminished or absent sexual function showed histopathologic evidence of destruction of Leydig cells. This is in agreement with the fact that even castrated adult males do not always lose their potency. But some studies revealed no relationship between impotence and testicular involvement in leprosy<sup>[3,4]</sup>.

Disturbance in sexual potency in these patients may be due to associated psychological problems from of

such a disfiguring disease<sup>[5]</sup>. Also, inadequate psychiatric care of people with Hansen's disease, acts as increases the problem. Society maintains negative feelings toward people with Hansen's disease. Problems such as divorce, unemployment and displacement from area of residence are common in affected people<sup>[6]</sup>. Comorbidity among patients with Hansen's disease is particularly common and may have significant implications in terms of choice of treatment.

Several studies have shown increased prevalence of psychological morbidity in patients with leprosy. Chronic neuropathic pain has also been associated with psychological problems and decrease quality of life. In some series, up to 65% of patients have psychological morbidity, Depression is the most common psychiatric disorder found in these patients.

Early detection and treatment of psychiatric disorders among Hansen's disease patients is a powerful

psychotherapeutic measure. Integrated healthcare strategy will be beneficial to these patients<sup>[7,8]</sup>.

## PATIENTS AND METHODS

Forty married male patients with Hansen's disease, referred from leprosy clinic in Beni-Suef were enrolled in this research. Inclusion. Criteria of inclusion included Adult adult married males who are diagnosed as cases of Hansen's disease, age between 18 and 60 years old. While the exclusion criteria included unmarried patients, patients below 18 years or above 60 years, other common illness affecting erectile dysfunction as DM, hypertension, etc. Patients who have past history of psychiatric illness, or under treatment for any psychological diseases were also excluded.

All patients signed an informed consent and the research protocol is was approved by local ethical committee.

These patients were subjected to the followings: full-history taking including a) Personal history: age, occupation, years of marriage and numbers of children. b) Medical history: Including co- morbid illness e.g. Diabetes, hypertension, cardiovascular disease, renal disease. c) History of the disease, the duration of the disease. d) Sexual history: sexual activity at last 4 weeks, sexual activity before disease, and frequency of intercourse per month. Thereafter, all patients filled up the following interview validated questionnaires: International Index of Erectile Function-5 (IIEF-5)<sup>[22]</sup>, Beck Anxiety Scale<sup>[23]</sup> and Beck Depression Scale. Blood free testosterone (FT) levels were measured for all patients.

## RESULTS

A total of 40 patients, age ranged between 27-60 years (mean 43.4± 9.3). All patients included in this study were married for 0.7- 43 years (mean 17.9± 10.4). The duration of the disease ranged from 0.5- 50 years (mean 12.2± 10.5) shown in (Table. 1). 33 Of them, 33 (82.5%) were fertile, 7 (17.5%) were infertile, and 18 (45%) patients had deformities due to Hansen's disease.

International index of erectile function score ranged from 8- 23 (mean 13.4± 5.6)., Nine patients (22.5%) with

no erectile dysfunction versus, 31 (77.5%) were with erectile dysfunction. Of them, two (5%) had mild erectile dysfunction, five (12.5%) had mild to moderate erectile dysfunction, 24 (60%) moderate erectile dysfunction. Besides, 11 (27.5%) had abnormal free testosterone level, 35 (87.5%) had anxiety disorders, 21 (52.5%) had depressive disorders (Table. 2).

There was statistically significant difference between patients with erectile dysfunction and patients without erectile dysfunction regarding Beck anxiety inventory ( $p$ -value < 0.05). In addition to high statistically significant difference revealed regarding Beck depression inventory ( $p$ -value < 0.01). But no statistical significant difference regarding free testosterone level ( $p$ -value > 0.05 or regarding types of leprosy, PB/MB as  $P$ - value = 0.138 (Table. 3).

There was significant negative correlation between IIEF-5 score and Beck depression inventory ( $P$  value < 0.01). But no significant correlation revealed between IIEF-5 score and anxiety disorders, or free testosterone levels (Table. 4).

A high negative significant correlation revealed between IIEF-5 score and deformity grading as  $P$  value = 0.002. However, no significant correlation obtained between deformity grades and anxiety disorders or depressive disorders.

There is a high positive significant correlation between anxiety disorders and depressive disorders. While no significant correlation observed between free testosterone level and anxiety disorders or depressive disorders.

There was no significant correlation between age of patients and IIEF-5 score, free testosterone, anxiety disorders, or depressive disorders

A like, no significant correlation noted between duration of disease and IIEF-5 score, free testosterone level, anxiety disorders, and no significant correlation between duration of disease and depressive disorders.

**Table. 1:** Demographic data of the our patients

	Range	Mean $\pm$ SD
IIEF-5 (International Index of Erectile Function)	8-23	13.4 $\pm$ 5.6
Free testosterone	0.62-185	70.2 $\pm$ 41.5
Beck anxiety inventory	5-27	13.7 $\pm$ 5.1
Beck depression inventory	5-21	12.9 $\pm$ 4.7
Age	27-60	43 $\pm$ 9.3
Duration of marriage	0.7-43	17.9 $\pm$ 10.4
Duration of disease	0.5-50	12.2 $\pm$ 10.5

**Table. 2:** Erectile function, Beck anxiety inventory, Beck depression inventory and free testosterone in our patients

Mood changes	Frequency	%	
IIEF5	No erectile dysfunction	9	22.5
	Mild erectile dysfunction	2	5
	Mild to moderate erectile dysfunction	5	12.5
	Moderate erectile dysfunction	24	60
Beck anxiety inventory	No or Minimal anxiety	5	12.5
	Mild anxiety	20	50
	Moderate anxiety	13	32.5
Beck depression inventory	Severe anxiety	2	5
	No or minimal depression	19	47.5
	Mild depression	17	42.5
Free testosterone	Moderate depression	4	10
	Normal	29	72.5
	Abnormal	11	27.5

**Table 3:** Comparison between patients without erectile dysfunction and patients with erectile dysfunction

Parameters	No erectile dysfunction (n=9)	Erectile dysfunction (n=31)	P value	
Beck anxiety inventory Range Mean± SD	5-16 10±4.15	7-27 14.58±4.9	0.014*	
Beck depression inventory Range Mean± SD	5-16 9.33±4	7-21 13.9±4.42	0.008**	
Sexual history	Ejaculation	7 (77.8%)	26 (83.9%)	0.504
	Libido	4 (44.4%)	21 (67.7%)	0.189
	Manual Stimulation	0 (0%)	11 (35.5%)	0.037*
	Morning Erection	0 (0%)	15 (48.4%)	0.007**
	Fertility	1 (11.1%)	6 (19.4%)	0.496
Types of leprosy, PB/MB	4 (44.4%) /5 (55.9%)	6 (19.4%) /25 (80.6%)	0.138	0.138

**Table 4:** Correlation between IIEF-5 score and some parameters (Free testosterone, beck anxiety inventory and Beck depression inventory)

	r	P value	Sig.
Free testosterone	0.3	0.109	NS
Beck anxiety inventory	-0.1	0.726	NS
Beck depression inventory	-0.5	0.002	HS

## DISCUSSION

The present study included 40 patients; of them 31 suffered from Ed ED while 9 patients showed normal erectile function. Since testicular affection is common in leprotic patients due to affection of Leydig cells, we compared the Ed ED patients with non Ed ED patients as regards the testosterone levels. but However, there was no significant statistical difference between ED and non-ED patients.

Also, there was no significant statistical correlation between IIEF-5 and free testosterone ( $P$  value=0.19) in both groups.

The relation between testosterone level and sexual function is controversial. Buena *et al*<sup>[8]</sup>, examined the relationship between serum T levels and sexual function when T levels are varied in the normal male range by pharmacological means. Two groups of healthy men were treated with a depot form of GnRH agonist to suppress endogenous T production and were given either 4 (n = 6) or 8 (n = 5) mg/d T replacement

by a sustained release, long-acting T microcapsule formulation. Duration of tumescence, libido and sexual activity were not significantly different between the 4 and 8 mg groups. These results indicate that erectile function and sexual activity and feelings are restored by relatively low T levels. This may help explain why some partially hypogonadal men continue to have normal sexual function.

But Aversa *et al*<sup>[9]</sup> mentioned that in all ED patients there was a strong direct correlation between resistive index values and FT levels ( $r = 0.47$ ,  $P = 0.002$ ); the relationship was maintained also when adjusted for age, SHBG and estradiol ( $r = 0.37$ ,  $P = 0.02$ ). These results indicate that in men with erectile dysfunction low free testosterone may correlate independently of age with the impaired relaxation of cavernous smooth muscles. These findings give clinical support to the experimental knowledge of the importance of androgens in regulating smooth muscle function in the penis.

Also Nigam, *et al*<sup>[21]</sup> reported noted that not all cases

of leprosy patients who complained of diminished or absent sexual function showed histopathologic evidence of destruction of Leydig cells. and Subsequently, they believed that this disturbance in sexual potency in these patients is partially due to an associated psychological state produced in the patients by such a disfiguring disease. Sugimori, *et al*<sup>[11]</sup>, reported ED associated significantly with depression and anxiety status only in late 40s to early 50s (45–55 years) in male Japanese.

In present the current study, there was high negative significant correlation between IIEF-5 and Beck depression inventory attributed, this may be due to the strong association between depression and erectile dysfunction., which This was in agreement with the previously obtained results suggested by Alfredo Nicolosi *et al*<sup>[10]</sup> and Sugimori, *et al*<sup>[11]</sup>.

In the present the study; generalized anxiety disorder was the most commonest psychiatric disorder (87.5%) followed by depressive disorders (52.5%). which This was in agreement with the study by Bhatia, *et al*<sup>[12]</sup>, .Against what had been and inconsistent with reported in some other previous studies<sup>[13- 15]</sup> that reported reporting depression was the most common psychiatric diagnosis followed by anxiety.

In this study, there was no significant correlation between duration of disease and anxiety or depressive disorders which is in agreement with Behere 1981 and Bharath *et al*. 1997 the result suggested by<sup>[16, 17]</sup> .

Among our patients, no significant correlation revealed between free testosterone level and depressive disorders, unlike the reported by Shores, *et al*<sup>[18]</sup> and we have no explanation for such results.

In present study, no significant correlation was found between physical deformity and anxiety disorders. Also, no significant correlation was found between physical deformity and depression in agreement with the study by Bhatia, *et al*<sup>[12]</sup> but against what had been reported in some previous studies<sup>[19, 20]</sup>.

In this work, a highly negative significant correlation revealed between deformity grade and erectile function as *P* value = 0.002 and a high positive significant correlation between anxiety disorders and depressive disorders.

Erectile dysfunction is one of the complications of leprosy that may be due to testicular affection or the associated psychological disorders. Such a disfiguring disease and these psychiatric disorders largely go unrecognized by health-care professionals and service providers of these patients. So, there is a growing need to treat these psychiatric and sexual disorders.

Psychiatric care should be practiced as a part of comprehensive health care of patients with leprosy.

## CONCLUSION

Erectile dysfunction, anxiety and depression are very common in Hansen's disease. and such problems are related to level of deformity and non-related not to type or duration of the disease, and not related nor to testosterone level. This finding could be of key importance for the clinical practice because it could modify the current management of patient withfor Hansen's disease.

## CONFLICT OF INTEREST

There are no conflicts of interest.

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