VOLUME - 11, ISSUE - 01, JANUARY - 2022 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Physical Medicine

ASSESSMENT OF SEXUAL FUNCTION IN SPINAL CORD INJURED PERSONS

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ABSTRACT Sexual activity and satisfaction has been reported to decrease among persons with SCI compared with controls. Persons with SCI report concerns about satisfying their sexual partner, feel sexually unattractive, and experience sufficient personal satisfaction, with concerns about their partners' needs. The persistence of concerns about partner and personal sexual satisfaction after SCI is, by itself, a compelling call to the rehabilitation community to find and make more readily accessible, effective interventions to improve sexuality after SCI.

Here we consider the impact of Spinal Cord Injury (SCI) on sexual functions. 42 SCI patients (39males and 3 Females), attending a tertiary care hospital were included in the study after ethical committee approval. Detailed medical history was taken, physical examination done and necessary lab investigation obtained. They were evaluated for their sexual attitudes and functions, from their responses to a questionnaire given to them.

In the study population all consider sexuality is important in life, 93.23% persons are interested in sexual life. 69% of patients point out that there is decrease in desire after injury and 78.57% say current sexual life is bad compared to pre injury which is consistent with other researches and that explains the need for sexual education and interventions in SCI. The present study suggests that there is strong need for the treatment of the medical complications of SCI, sexual counseling, literature, information and peer support in our country. A positive attitude of the treating doctor makes the patient to disclose their problems; an open discussion about their concerns and doubts makes them positive towards sexuality.

Patients with SCI yearn to continue with sexual functions despite physical disability. Physical and psychosocial issues are not isolated and require healthcare professionals from other allied specialties for a more comprehensive rehabilitation of SCI patients.

KEYWORDS : Spinal cord injury, Sexual functions, Sexuality

INTRODUCTION

Sexuality is a broad term encompassing both emotional and physical aspects of a person's sexual makeup whereas the term sexual function generally refers to the physical aspects of a person's sexual responses. Sexuality is an expression of the total personality evident in everything done by a person[1]. Interactions with others, personal hygiene, speech, dress, and expressions of affection are all an important part of sexuality. Because of this, sexuality can persist beyond reproductive years and/or good health. Disability often has a dramatic negative impact on sexual functioning. Here we consider the impact of Spinal Cord Injury (SCI) on sexual functions. Partner relationships seem to be affected by SCI, although not as much as is widely believed[2]. Persons with SCI report concerns about satisfying their sexual partner, feeling sexually unattractive, and experiencing sufficient personal satisfaction, with concerns about their partners' needs.[3,4,5]. Sexual activity and satisfaction has been reported to decrease among persons with SCI compared with controls[3,6]. Kreuter et al.[6] reported that psychosocial rather than physical factors are more important for a satisfying sex life and relationships. Sexual excitability and orgasm have been rated at much lower levels after injury compared with before injury[7]. Phelps et al.[8] found that genital function and sensation were not significantly related to sexual satisfaction.

In spite of the similarities in sexual functioning for people with and those without disabilities, the tendency has been to emphasize the differences between the two groups and to view people with disability as being sexually impaired[9]. The history of addressing sexual issues during the rehabilitation process dates back only to the 1970s when Theodore and Sandra Cole developed the "Sexual Attitude Reassessment" (SAR) program to train rehabilitation professionals[10]. A SCI person's sexuality can have a powerful direct effect on his or her sense of confidence and vice versa[11]. Rehabilitation professionals are commonly urged to recognize sexual concerns as a legitimate and important part of a well balanced rehabilitation programme[12]. In developing countries such as India, the management and rehabilitation of patients with SCI lags far behind; naturally sexual aspects of rehabilitation are often ignored.[13]. The first 6 months after discharge from acute rehabilitation has been proposed as a critical period for sexual health interventions. Sexual gratification can be achieved in a good relationship if the person with SCI can pleasure his partner and the partner also explores the erogenous areas that are not affected by the spinal cord injury[14].

Review Of Literature

While psychogenic and reflexogenic pathways can act independently, they usually act synergistically to determine the genital response via a final common pathway involving a sacral parasympathetic route[15].

Sexuality in spinal Cord Injury provides an excellent model for the holistic and reintegration approach that comprises sexual rehabilitation[16-22]. After complete SCI above the lumbosacral spinal cord center (usually above T10), reflexogenic arousal should be preserved whereas psychogenic arousal will not (due to the lesion interrupting the pathways from the brain to the T10–L2 spinal segment, the level responsible for psychogenic arousal). Conversely, complete lesions interrupting the sacral reflexogenic pathways will result on the reliance of psychogenic arousal to promote genital erection in men and women. The degree of preservation of sensation in the T11-L2 dermatomes is helpful in predicting those persons with SCI who are capable of psychogenic arousal[20,21], whereas the presence of a positive bulbocavernosus reflex (BCR) is indicative of an intact sacral reflex, boding well for the reflexogenic arousal capacity. Ejaculatory disorders (primarily anejaculation) are highly prevalent (over 90%) and thus fertility is a major issue for men with SCI[23]. Natural ejaculation is most likely to occur in men with incomplete conus medullaris or cauda equina lesions, and least likely in men with complete supraconal lesions[24].

Orgasm is attainable in 40% to 45% of men (most often with ejaculation but not always)[20] and approximately 50% of women after SCI[21]. Lack of genital sensation, and especially lower motor neuron injury affecting the sacral segments, make it significantly less likely to reach a genitally triggered orgasm. .While sexual satisfaction after injury is lower in both men and women after SCI, pursuing intimacy remains a major quality of life issue for the majority living with SCI[25].

There has been a major paradigm shift in the past two decades away from the psychiatric understanding of most sexual disorders in men and towards medicalization of male sexuality particularly with the advent of proerection medications[26-28]. Purely psychogenic male sexual disorders are much more underrepresented in the medical literature and are often misdiagnosed as erectile dysfunction by health practitioners[29]. Female Sexual Dysfunction are very common, with a reported prevalence of 40% to 50% in multiple population-based studies[30]. Sexual dysfunction in women has become a focus of renewed research interest in the past decade, in part based on the new understanding of the female sexual response cycle proposed by Basson[31], and the implications of that understanding toward diagnosis and treatment[62].

Assessment of sexual function starts with a complete Sexual History Taking. Because sexuality is a sensitive topic, it is best to maintain an attitude of openness and flexibility throughout the interview. The "ALLOW," "PLISSIT," and "BETTER" models are three different approaches for facilitating such a conversation.[32-34] A thorough physical examination, neurologic examination, genital and rectal examination are conducted. Recommended laboratory testing for all men and women with sexual dysfunction includes a complete blood cell count, fasting blood glucose level, and fasting lipid profile[33,35].

AIMS OF THE STUDY

1) Assess sexual function in spinal cord injured persons
2) To find out factors responsible for decreased sexual function

Study Design

This was a cross-sectional study, conducted at Department of Physical Medicine and Rehabilitation, Govt. Medical College, Kozhikode, a tertiary care centre in Kerala, during May 2013-May 2014. The study protocol was submitted to the Scientific Research Committee as well as Institutional Ethics Committee of the Government Medical College, and clearance was obtained for conducting study. Informed consent was obtained from all study participants. . All the information that was collected was kept confidential. No procedure was carried out which directly or indirectly produced risk to the subjects.

Spinal cord injured persons of more than 6 months duration, married at least 6 month prior to injury and having living partner, attending PMR IP/OP irrespective of recovery, willing for the study were included in the study consecutively. Persons with impaired cognition, persons on drugs/treatment prior to injury which has an effect on sexual function were excluded from the study. Sample size calculated by the formula $n=4pq/d^2$,where p = prevalence, q = 100-p, and d = allowable error (5- 20% of p). Thorough History, including sexual history was taken, complete physical examination including neurological, urological and genital examination was done, sexual functions assessed using pre-tested semi structured questionnaire given to the person. Age, Gender, Education, Income, Family details. Neurological status, Sexual functions. Basic demographic data coded, responses to sexual function scored and entered in Microsoft Excel sheet, rechecked and analyzed using SPSS statistical software. Basic Demographic data were analyzed using proportions and mean. Total score for each person to the sexual function questionnaire found out which is changed to score percentage. Each medical factor was analyzed with score category group for statistical significance using Chi Square test. **Score percentage= (**Observed value - lowest value)/ (Highest value- lowest value) x 100

RESULTS

Mean age was: 39 (Range: 26- 60), Mean Time since injury 21 months (Range – 6- 120 months),

Educational status was: Matriculate – 40, Graduate – 1, Post graduate – 1

Economic status: (Annual Income Rs.): < 10000 = 41, >25000 = 1

Family Type: Nuclear =37, Joint = 5

Length of marriage: < 1 yr = 1, 1 – 5 yrs = 5, 5 – 10 yrs = 9 and > 10yrs –=26

Intimacy with spouse was Cordial among all participants.

Mode of injury: Fall from height = 36, RTA = 5, Others = 1 (fall with weight over head)

Level of injury: Cervical = 18, Thoracic = 14, Lumbar = 3 and Cauda equina = 7.

3 patients had chronic medical illness

Bladder function was Controlled in 18, partially controlled in 17and Indwelling catheter was used by 7. 29 had back pain, 3 had pressure sore and UTI was there in 17. Injury was complete in 6, and incomplete in 36. Spine was fixed surgically in 32. Cremasteric reflex was present in 28.

Motor Power was Grade 5 in12, 3-4 in 16, 1-2 in 6 and zero in 7.

Table 1: Sexual Function Questionnaire

Sl. No.	Question
1.	Do you understand the importance of sex in life?
2.	Do you have any interest in sex?
3.	Do you find any change in desire for sex in your life?
4.	How does your current sexual life compare with sexual life before injury?
5.	Did you have intercourse after injury?
6.	Do you feel satisfied with your present sexual life?
7.	Does your partner feel satisfied with sexual activity?
8.	Do you feel that your partner cooperates with you during sexual activity?
9.	Have you noticed any change in relation with your partner in life after injury?
10.	Would you like to have more children?
11.	Do you want divorce/breakage of relationship?
12.	Do you have erection?
13.	Do you have ejaculation?
14.	Do you have normal Menstruation?

Table 2: Sexual Function Total Score

Range	Frequency	Percentage
50 – 74.99%	30	71.4
>/= 75%	12	28.6
	42	100

Table 3: Anal Tone

	Score percentage category			
	50 – 74.99%	>/= 75%		
Incr/decr	19	95.0	1	5.0
normal	11	50.0	11	50.0

	30	71.4	12	28.6

Chi square: value =10.39 , df =1 , p = 0.001

Table 4: Bladder

	Score percentage category			
	50 – 74.99%		>/= 75%	
Indwelling	6	100	0	0
Partial	18	100	0	0
Controlled	6	33.3	12	66.7

Chi square: value =22.4, df =2 , p = 0.00

Table 5: Pressure Sore

	Score percentage category			
	50 – 74.99%		>/= 75%	
Presnt	3	100	0	0
Absent	27	69.2	12	30.8

Chi square: value =1.292 ,df =1 , p = 0.256

Table 6: Extent Of Injury

	Score percentage category			
	50 – 74.99%		>/= 75%	
Complete	7	100	0	0
Incomplete	23	65.7	12	34.4

Chi square: value = 3.360, df =1 , p = 0.067

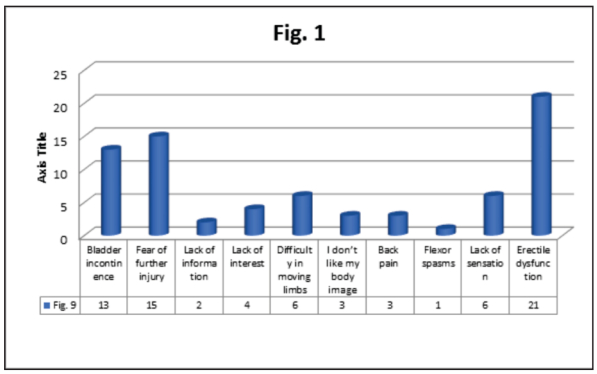

Fig 1: Factors Affecting Intercourse

None complained Pressure sore, Lack of privacy, stiff joints to hinder sexual function

DISCUSSION

In this study the number of female participants were much lower (3:39) with a ratio of 1:13 in comparison to studies by Chacko et al[36] (13.5:1), Shanmughasundaram[37] (8.98:1), Dave et al[38] (3.7:1). Less number of female participants may be because of lower incidence of SCI among them and reviews to hospital are infrequent compared to male SCI. Most common cause of injury was fall from height as similar to the observation by Roop Singh et al.[39]

In the study population all consider sexuality is important in life, 93.23% persons are interested in sexual life. 69% of patients point out that there is decrease in desire after injury and 78.57% say current sexual life is bad compared to pre injury which is consistent with other researches[6,40,8,41,42], and that explains the need for sexual education and interventions in SCI. Majority of persons (59.52%) attempted intercourse. White et al.[4] reported that 63% of their subjects had intercourse after injury, supporting the rehabilitation philosophy that intercourse is often feasible. Study agrees with Siosteen[40] that sexual intercourse is a very important factor in an individual's general interest in sexuality and willingness to lead a sexually active life. The frequency of sexual activity was less compared to that in pre injury; bladder incontinence (30.95%), fear of further injury (35.71%), decreased sensation of genital area(14.29%), difficulty to turn on bed (14.29%) and for males erectile dysfunction(53.84%) were the major issues for decreased frequency. White et al.[4] reported that having a physical relationship was related to receiving helpful information about sexuality and sexual activities other than intercourse should be introduced to this group via counseling.

Sexual intercourse was nil in those on Foleys though they had erections. This finding agrees with the study by Benevento BT et al[43] that bladder dysfunction is associated with poor sexual adjustment post injury. To avoid fear of incontinence patients on ICC can be advised to decrease fluid intake at night and perform ICC prior to intercourse. In those complained fear of further injury by intercourse, for 8 persons it was partner's fear and that show the importance of education to the patient and also to the partner. 8 persons in the study wanted to have children after injury. Though facilities are available expenditure for treatment and financial problems in parenting children are main issues. None in the study wanted divorce. 26 reported their relationship with partner improved following injury which is positive towards sexual relationship. Of the 39 males 92.3% reported erection either reflex or psychogenic and 66.67% had ejaculation after the injury. These results were comparable with Roop singh et al.[39].

From the study, age has no effect on sexual function of persons. This was contradictory to studies saying age carries one of the strongest negative correlations with subjective and objective satisfactory sexual rehabilitation[44]. This may be because the mean age of study population was 39 years. For the duration of marriage, analysis showed improved function in those with short duration of marriage which is statistically significant, this may be due to more intimacy and concern about the partner in them. Persons with duration of injury <1 years had a good function and it decreases with increase in duration a finding similar to Thomas L et al[7] but it was not statistically significant (p=0.117)

Study observed that there is decreased sexual function in those with cauda equina a finding against the observation by Dahlberg A et al.[45] that decrease in function is independent of level of lesion .The difference observed was not significant (p = 0.070). On correlating sensation over the genital area with sexual function there is better function for those having genital sensations but it was not statistically significant (p =0.101). Power of the muscle groups below lesion has a positive impact of sexual function as those with good power had better function and the difference was statistically significant (p=0.007). Those patients with cremasteric reflex and normal anal tone has got improved sexual function which is statistically insignificant (p=0.182) and significant (p=0.001) respectively. It is because of intact nervous system which aid in erection and fear of incontinence is less. Better function was noted in those with bladder control and the difference was statistically significant (p=0.000). Flexor spasms were clinically significant in sexual function from the similar to the observation by Roop Singh et al[39] as spasms hinder intromission and proper positioning, but this was not statistically significant. Incidence of UTI and surgical intervention has got negative effect on sexual function and the difference observed was statistically significant

Completeness of lesion shows that there is good function for those with incomplete lesion not correlating with the study by Antti Dahlberg et al[46] stating completeness of the lesion, seemed not to be very important in the area of sexuality, however finding was not significant (p=0.067) .

CONCLUSIONS

Patients with SCI yearn to continue with sexual functions despite physical disability. A complex interplay of factors seems to affect sexuality in them. The persistence of concerns about partner and personal sexual satisfaction after SCI is, by

itself, a compelling call to the rehabilitation community to find and make more readily accessible, effective interventions to improve sexuality after SCI.

The present study suggests that there is strong need for the treatment of the medical complications of SCI, sexual counseling, literature, information and peer support in our country. More intervention in support of sexual health after SCI promises greater gains in satisfactory sexual life, as well as positive effects on all other aspects of human function. A positive attitude of the treating doctor makes the patient to disclose their problems; an open discussion about their concerns and doubts makes them positive towards sexuality. Patients must pay attention to new possibilities of living and the way sexuality is experienced within a relationship, where the role of the partner is as important. Physical and psychosocial issues are not isolated and require healthcare professionals from other allied specialties for a more comprehensive rehabilitation of SCI patients.

Limitations

1) To understand sexual aspects and problems of patients with SCI, study relies on information given by patients themselves. In India, where talking about sex in open is considered a taboo, patients may give false accounts, deny aspects of their sexual lives they regard as unacceptable or reply in a way that they consider socially desirable.
2) Small number of female participants.
3) Study restricted to persons in Malabar region and one tertiary centre, so the results cannot be generalized to all spinal cord injured; since sexual function depend on religious, social and cultural practices of the community under study.
4) Sexual problems prevalent in unmarried SCIs also they were not included in the study.

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