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Original article

SEXUAL FUNCTIONS AND SEXUAL RELATIONSHIPS OF THAI MEN WITH CHRONIC SPINAL CORD INJURY

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Abstract

Objective To study sexual functions and sexual relationships of Thai men with chronic spinal cord injury (SCI).

Method Thai men, who were older than 18 years old and had had SCI for more than one year, were interviewed. Their sexual functions, sexual relationships and related factors were analyzed and reported.

Results Fifty six SCI men (age: median 34.5 years and time since injury: median 5.5 years; 17 tetraplegics, 39 paraplegics; 35 ASIA impairment scale-A, 9 B, 4 C and 8 D; 5 separated, 1 divorced and 27 partnered) were enrolled in this study. Regarding their sexual functions, 62.5% of them had sexual desire, 57% had sexual excitement, but only 28.6% had sufficient erection for sexual intercourse. Among 15 men engaging in sexual intercourse, 60% reached orgasm, but only 40% had ejaculation. When comparing between groups of different severity and levels of injury, there were no significant differences in degree of erectile dysfunction, orgasm or ejaculation. One-third received sex education, mainly from reading the handbook for SCI patients. Rate of satisfaction in sex life was higher in those receiving sex education (73.3%) than those who did not (46.3%) (p=.073).

Conclusion After spinal cord injury, most Thai men have impaired sexual functions, especially erectile dysfunction. Sex education during rehabilitation could improve their satisfaction in sex life.
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Keywords: spinal cord injury, sexual dysfunctions, erectile dysfunction, sex education, man

During the post-acute rehabilitation phase, patients with spinal cord injury (SCI) in Thailand, are usually worried about limb paralysis or paresis and the inability to walk again. They rarely ask about their sexual functions, although most of them are men aged under 46 years, who were sexually active before injury.(1)

According to the International Classification of Functioning, Disability and Health (ICF),(2) sexual functions are defined as mental and physical functions related to the sexual act, including arousal (sexual interest and excitement), preparatory (engaging in sexual intercourse), orgasmic (reaching orgasm) and resolution (satisfaction after orgasm and accompanying relaxation) stages; and sexual relationships are activities that create and maintain a sexual nature with a spouse or partner. Physiatrists or rehabilitation specialists should be concerned with the above mentioned functions as sexual function impairments lead to limited sexual relationships and disturbance in intimate and family relationships.

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During the past 10 years, there have been nearly 100 papers published about sexual dysfunctions in patients after SCI. Some are review articles,[3-5] more than half are about treatment of erectile dysfunctions (ED), and most have come from western countries. Only three papers have been reported from Asian countries (Japan, South Korea and India).[6-8] According to a study by Sharma et al (2006),[6] 64% of 100 Indian men had an erection adequate for sexual intercourse more than 6 months after injury; 62% had sexual intercourse; 60% had ejaculation and 66% were satisfied with their sex life. Ku *et al* (2006) studied 89 chronic SCI men in South Korea and 32.6% of them reported having sexual intercourse.[7] In Japan, 14% of 85 chronic SCI men engaged in sexual intercourse more than 1 year after injury.[8] According to reports from northern Europe and America, the percentage of chronic SCI men having sexual intercourse was higher; ranging from 40%-56% in Sweden[8,9] to 55.3%-62% in the United States.[10-12] It seems that chronic SCI men were more active sexually in western countries[8-12] than eastern ones.[6-8]

In Thailand, there had been no study about the prevalence and problems of sexual dysfunctions in Thai chronic SCI men. Therefore, we conducted this cross-sectional study to report sexual functions, sexual relationships, satisfaction in sex life and the needs of men with chronic SCI in Thailand in order to improve sex education and serve their needs best in the future.

Methods

The participants were SCI men admitted to the rehabilitation ward or attending the rehabilitation out-patient clinic at Maharaj Hospital, Chiang Mai from January to August 2008.

Inclusion criteria: age > 18 years old and duration of injury > 1 year.

Exclusion criteria: history of traumatic brain injury, pelvic injury, and erectile dysfunction before the onset of injury.

After giving informed consent, participants were asked to complete questionnaires about sexual functions: sexual arousal, erection, methods of assisting erection, duration of maintaining erection, orgasm, ejaculation and resolution; frequency of sexual activities; satisfaction with sexual life; difficulties and problems interfering with sexual intercourse such as spasticity, urinary or faecal incontinence, pain and autonomic dysreflexia; and need of sex education.

For statistical analysis, SPSS version 15.0 was used. Data, such as prevalence and frequency, were reported as percentage. Fisher's Exact test was used to analyze independent factors related with sexual functions and satisfaction.

This study was approved by the Research Ethic Committee, Faculty of Medicine, Chiang Mai University, and we certified that all applicable institutional and governmental regulations concerning the ethical use of human volunteers/ animals were followed during the course of this research.

Results

Of fifty-six Thai men with chronic SCI (age: median 34.5, range 20-65, mode 26 years; duration from injury: median 5.5, range 1-37, mode 3 years) 30.4% were tetraplegic and 69.6% paraplegic; ASIA/ISCOS impairment scale: 62.5% A, 16.1% B, 7.1% C and 14.3% D; 83.9% were spastic and 16.1% flaccid; 10.7% were separated/ divorced and 85.7% were living with family.

Regarding sexual functions, 57.1% of all 56 men had sexual excitement with direct sexual stimulation and 50% with visual/auditory/tactile stimuli; 14.3% had a full erection, 14.3% enough erection for intercourse, 14.3% erection but not enough for intercourse, 35.7% inadequate erection and 21.4% no erection at all (see Table 1). Levels and severity of injury (complete tetra-, incomplete tetra-, complete para- and incomplete para-plegia) did not relate with direct sexual arousal/excitement (p=.088), degrees of erection (p=.362), orgasm (p=.648), ejaculation (p=.849) and resolution (p=.380) (see Table 2).

Of all 56 men, 27 (48.2%) had a wife/partner, and 15 (55.6%) of them engaged in sexual (genital-genital) intercourse, 5 (18.5%) had oral sex, 2 masturbated (7.4%) and 2 helped their partners masturbate (7.4%); other sexual activities were hugs (100%) and kisses (95.6%). One used a rubber band and 2 took medication to assist erection Of the 15 SCI men who engaged in sexual intercourse, only 5 (33.3%) reached orgasm the same as before injury, 4 (26.7%) had fewer orgasms and

Table 1. Sexual functions among chronic Thai spinal cord injured men

	Degree of response	Number (%)
Morning erection	No	16 (28.6)
(N = 56)	Yes	40 (71.4)
Penile erection(N=56)	Not at all	12 (21.4)
	Enlarged but not firm	20 (35.7)
	Firm but not enough for penetration	8 (14.3)
	Firm and enough for penetration	8 (14.3)
	Full erection for penetration	8 (14.3)
Duration of penile erection (N =15)	Not enough to complete sexual intercourse	5 (33.3)
	Enough to complete sexual intercourse	10 (66.7)
Erection assistance (N = 15)	Not needed	12 (80)
	Medication	2 (13.3)
	Rubber band	1 (6.7)
Orgasm (N = 15)	None	6 (40)
	Less than before injury	4 (26.7)
	Same as before injury	5 (33.3)
Ejaculation (N = 15)	None	9 (60)
	Premature ejaculation	1 (6.7)
	During orgasm	5 (33.3)

Table 2. Sexual functions according to severity and level of spinal cord injury

Sexual functions	Number (%)				
	Complete tetraplegia (N=10)	Incomplete tetraplegia (N=7)	Complete paraplegia (N=10)	Incomplete paraplegia (N=7)	P-value
Sexual excitement (N = 56)					
• With direct stimulation	6 (60)	6 (86)	10 (40)	10 (71)	.088
• With audiovisual stimuli	6 (60)	5 (71)	9 (36)	8 (57)	.269
Penile erection (N = 56)					.362
• No erection	2 (20)	0 (0)	7 (28)	3 (21)	
• Enlarged but not firm	4 (40)	4 (57)	5 (20)	7 (50)	
• Firm but not enough for penetration	2 (20)	1 (14)	5 (20)	0 (0)	
• Firm and enough for penetration	2 (20)	1 (14)	2 (8)	3 (21)	
• Full erection for penetration	0 (0)	1 (14)	6 (24)	1 (7)	
Orgasm (N = 15)	1 (10)	1 (14)	4 (16)	3 (21)	.648
Ejaculation (N = 15)	3 (30)	1 (14)	0 (0)	2 (14)	.849

6 (40%) had no orgasm; 9 (60%) had no ejaculation, 5 (33.3%) ejaculated during orgasm and 1 (6.7%) before orgasm; and 3 (20%) relaxed after intercourse.

Nine men (60%) had sexual activities less than once a month, 5 (33.3%) 1-2 times a month, 6 (40%) 1-2 times a week and 3 (20%) more than 2 times a week. Some reported interference with

sexual intercourse from spasticity (3 men, 20%), pain (1 man, 6.7%) and incontinence (1 man, 6.7%). One had fecal incontinence, but it did not disturb sexual intercourse, and no one reported autonomic dysreflexia during sexual activities.

Thirty of the 56 SCI men (53.6%) and 14 out of 27 partnered men (51.8%) were satisfied with their sex life and 63.0% of the latter reported that their partner was satisfied too. There were no differences in satisfaction with sex life between those with and without a partner (p=.803) through duration after injury (< or = 5 years v > 5 years) (p=.284) or type of paralysis (tetraplegia v paraplegia) (p=.780), AIS (A&B v C&D) (p=.270).

Only 15 (26.8%) of the 56 men reported having sex education. Of these, 80% read the handbook for SCI patients provided during rehabilitation and 13.3% received help from phy-siatrists. Satisfaction rate was higher among those receiving sex education (73.3%) than those who did not (46.3%) (p=.073). Furthermore, 12.5% needed to know about birth control, 14% about safe sex, 22% on how a baby is conceived and 42.8% regarding methods or techniques of assisting erection.

Discussion

Our study showed that about half of the Thai chronic SCI men studied with neurological impairments were satisfied with their sex life. More than half still had sexual interest and excitement after stimulation, but less than one fifth had a normal erection. Of partnered SCI men, two thirds were able to engage in natural sexual intercourse and a few used alternative means to assist erection and sexual intercourse.

This confirms that SCI men are not always asexual. Like other men, they want normal sexual functions and sexual relationships. Therefore, they and their wife or partner need sex education to enable them to create or maintain sexual relationships after SCI. In developing countries, where sex counselors do not existed, physiatrists or rehabilitation specialists should be responsible for sex education and start it from rehabilitation and continue through a long-term phase.

When compared with SCI men in other countries (see Table 3), the percentage of Thai SCI men (26.8%) engaging in sexual intercourse was higher than that of Japanese SCI men (14%),[8] but lower than that in other regions (South Korea 32.6%,[7] India 62%,[6] United States 55.3%-62%,[10-12] and Sweden 40%,-56%.[8,9] When counting only those with a partner, the percentage of them having sexual intercourse was rather high (55.6%). The reasons for the low percentage of sexual intercourse among Thai SCI men in general might be due to having no partner or wife, culture (inability to talk openly about sex), negative attitude about sex after SCI (SCI men as asexual persons), and not receiving adequate sex education or counseling.

More than half of Thai SCI men were satisfied with their sex life, while 36% of SCI men in Finland,[13] 43% in Sweden and only 14% in Japan[8] were satisfied with theirs. According to previous studies (see Table 3), but not our study, satisfaction seems related with sexual functions. According to another Swedish study, which used the numeric rating scale: 0 (for dissatisfied) to 10 (for satisfied), the median of satisfaction with sex life was 3 for SCI men, and dissatisfaction increased with increasing age and was related with urinary and fecal incontinence as well as neuropathic pain.[14]

According to a web-based survey of the impact of SCI on sexual functions (2007), bladder or bowel issues did not prevent SCI men from seeking sexual activity. However, those experiencing bladder or bowel incontinence during sexual activity were deterred from sexual engagement; and urinary incontinence (10%) had more impact than fecal incontinence (5%) in the male population.[15] Our finding was quite similar, i.e., 6.7% reported that incontinence interfered with sexual intercourse.

When assessing the needs of SCI men during rehabilitation, it becomes clear that providing a handbook with a chapter on education, and discussion about sex, is not enough for understanding and finding suitable ways to create or maintain a sexual relationship with a wife or partner. According to a web-based survey, one main reason among SCI persons for pursuing sexual activity is the need for intimacy.[15] One fourth of SCI men in our study were divorced or separated. Although we did not ask them the reason for divorce or separation, being paralyzed with sexual dysfunction could be a main cause. More than half of

Table 3. Sexual act, sexual functions and satisfaction with sex life of spinal cord injured men: comparison between this study and others reported in the literature

Studies (years)	Country of study	Spinal cord injured men			Percent of spinal cord injured men						
		Number	Age(Year) Median (rang)/ Mean (SD)	Time since injury(Year) Median (rang)/ Mean (SD)	Sexual disire	Sexually active	Sexual intercourse	Full erection	Ejaculation	Orgasm	Satisfaction with sex life
This study (2010)	Thailand	56	34.5 (20-65)	5.5 (1-37)	62.5	41.1	26.8	28.6	10.1	16.1	53.6
		27 with partner			100	88.9	65.2	22	40	60	51.8
Ku et al (2006)[7]*	Korea	89	Mean 37.6 (18-66)	51.7 (12-288) mo	NA	32.6	30	NA	NA	NA	NA
Sharma et al (2006)[6]	India	100	31.8 (18-51)	1.7 (0.5-13)	93	NA	62	64	60	NA	66
Ide and Fugl-Meyer (2001)[8]	Japan	85	48 (10.6)	18.0 (3-38)	NA	71	14.5	NA	NA	NA	14
	Sweden	40	49 (17.0)	10.0 (1-35)	NA	70	40	NA	NA	NA	34
Krueter et al (1996)[9]	Sweden	75	33 (19-76)	5 (1-9)	78	68	39	NA	NA	NA	61
Dahlberg et al (2007)[13]	Finland	92	49 (14)	NA	86	68	NA	NA	NA	65	36
Anderson et al (2007)[10]	USA, Canada	199	42.5 (11.8)	14.2 (11.6)	NA	55.3	NA	38.7	47.7	40.7	NA
Phleps et al (2001)[12]	USA	50	50 (20-83)	NA	80	96	62	20	NA	68	56
Alexander et al (1993)[11]	USA	38	26 (18-70)	37 (5-264) mo	78	79	61	NA	23.7	47.4	35

Remark: * Ku's study showed only 1.1% with no erectile dysfunction according to IIEF-5; and rated satisfaction with sex life as 0 to 5; and showed a mean of 0.7 and standard deviation of 0.1; NA = data not available

the SCI men in this study had maintained sexual desire and wanted to know about techniques for erection enhancement.

The prevalence of ED among SCI men (71.4%) was twice that of Thai men in the general population (37.5% of Thai men aged 40-70 years).[16] However two-thirds of those having sexual engagement in our study had erection that lasted long enough to complete sexual intercourse (see Table 1). This may be due to incomplete lesions with an intact psychogenic parasympathetic erection pathway, which is suggested as being responsible for sustained erection.[5] According to a web-based survey carried out in the USA and Canada, 28.6% of 199 SCI men tried medication for erection enhancement.[10] According to this study, only 2 out of 27 men with a partner tried medication for ED.

Recently (September 2009), the Thai Food and Drug Administration launched a new policy that men with ED can buy a limited amount of ED drugs from 355 registered pharmacies in the country, but they have to be interviewed for safety and needs by trained pharmacists.[17] Perhaps this will help Thai men (including SCI men) with ED to have better sexual relationships and satisfaction in sex life. However, most of the Thai SCI men generally cannot afford to buy such products or other technology for assisting erection and sexual intercourse, but they, like most men, want to enjoy sex and satisfy their wife or partner. This problem may be partially solved by changing attitudes and varied techniques of having sex.

Interestingly, Indian SCI men had a very high rate of engagment in sexual intercourse,[6] perhaps due to learning about the well-known Indian Kamasutra of Vatsyayana.[18] Changing sexual acts such as position from man-on-top to women-on-top or side-by-side; or from genital-genital to oral-genital sex, and learning how to embrace, may create more sexual satisfaction for both partner and the SCI man. Less than one fourth of the partnered men in our study had oral sex, which was far fewer than those reported from Sweden.[9] Therefore, sex education for SCI men should not only include how to control interference during sexual activities such as incontinence, safe sex, birth control and how to conceive, but also be about sexual interaction - sexual arousal, foreplay and types of sexual acts.

Ejaculation is mainly adrenergic and somatic, and the spinal reflex ejaculation generator has been localized in the thoracolumbar region that contains lumbar spinothalamic cells.[5] It was found to correlate weakly with control of urination and defecation post injury.[10] Furthemore, according to a controlled, laboratory-based analysis, men with incomplete SCI were more likely to achieve orgasm than those with complete SCI; and men with complete lower motor neuron dysfunction were less likely to achieve orgasm than those with other patterns of SCI.[19] However, in this study, from 15 SCI men with a partner and having sexual intercourse, 60% achieved an orgasm and 40% managed ejaculation; and such achievements did not relate with completeness or level of lesion. This may be due to not enough subjects recruited into the study. To improve future studies, the International Index of Erectile Function Questionnaire (IIEF) may be applied so that results can be compared with other researches;[7,19] and have a matched control group from the general population to compare sexual functions between SCI and normal Thai men.

Conclusion

Impaired sexual functions are more prevalent among Thai chronic SCI men than men in the general population. Their concerns are more about how to overcome erectile dysfunction and how to engage in sexual intercourse. Physiatrists or rehabilitation specialists should pay more attention and devote time to sex education and counseling with SCI men and their partner during rehabilitation and long-term phases, as creating or maintaining sexual relationships and achieving sexual satisfaction is an important part of a man's life.

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สมรรถภาพและความสัมพันธ์ทางเพศของผู้ชายไทยบาดเจ็บที่ไขสันหลัง

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บทคัดย่อ

วัตถุประสงค์ เพื่อศึกษาสมรรถภาพและความสัมพันธ์ทางเพศของผู้ชายไทยบาดเจ็บที่ไขสันหลังเรื้อรัง

วิธีการศึกษา สัมภาษณ์ผู้ชายไทยอายุมากกว่า 18 ปี ที่ไขสันหลังเคยได้รับบาดเจ็บมานานมากกว่า 1 ปี นำข้อมูลด้านสมรรถภาพและความสัมพันธ์ทางเพศ และปัจจัยต่าง ๆ ที่เกี่ยวข้องมาวิเคราะห์หาความสัมพันธ์

ผลการศึกษา มีผู้เข้าร่วมการศึกษาจำนวน 56 คน เป็นผู้ป่วยอัมพาตแขนขา 17 คน และอัมพาตท่อนล่าง 39 คน; ค่ากลางอายุเท่ากับ 34.5 ปี และระยะเวลาตั้งแต่ได้รับบาดเจ็บเท่ากับ 5.5 ปี; 5 คนแยกทาง 1 คนหย่าร้าง และ 27 คนมีคู่; ร้อยละ 62.5 มีความต้องการทางเพศ ร้อยละ 57 มีอารมณ์ทางเพศเมื่อถูกกระตุ้น แต่ร้อยละ 28.6 มีอวัยวะเพศแข็งตัวพอเพียงสำหรับการร่วมเพศ; พบว่าผู้ชายที่มีการร่วมเพศจำนวน 15 คน ร้อยละ 60 ถึงจุดสุดยอด และร้อยละ 40 มีการหลั่งน้ำอสุจิตามลำดับ; ไม่พบความแตกต่างกันของการแข็งตัวของอวัยวะเพศ การถึงจุดสุดยอด และการหลั่งน้ำอสุจิ ระหว่างกลุ่มที่มีระดับและความรุนแรงของการบาดเจ็บที่ไขสันหลังต่างกัน; หนึ่งในสามได้รับความรู้ด้านเพศศึกษา ซึ่งส่วนใหญ่ได้จากการอ่านหนังสือคู่มือสำหรับผู้ป่วยบาดเจ็บที่ไขสันหลัง ทั้งนี้กลุ่มที่ได้รับความรู้ดังกล่าวมีอัตราความพึงพอใจในชีวิตเพศสูงกว่ากลุ่มที่ไม่ได้รับ (ร้อยละ 73.3 และร้อยละ 46.3 ตามลำดับ) (p=.073).

สรุป หลังจากบาดเจ็บที่ไขสันหลัง ผู้ชายไทยส่วนใหญ่มีสมรรถภาพการทำงานของอวัยวะเพศบกพร่อง โดยเฉพาะอย่างยิ่งอวัยวะเพศไม่แข็งตัว การได้รับความรู้ด้านเพศศึกษาสามารถเพิ่มความพึงพอใจในชีวิตเพศได้ **เชียงใหม่เวชสาร 2553;49(3):89-96.**

คำสำคัญ: บาดเจ็บที่ไขสันหลัง การเสื่อมสมรรถภาพทางเพศ อวัยวะเพศไม่แข็งตัว เพศศึกษา ผู้ชาย