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Cord Injury and Ejaculatory Dysfunction in Young Men in a Third Level Hospital of Cali-Colombia

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ABSTRACT

The level of spinal cord injury (SCI) has been associated with ejaculatory dysfunction and mortality. The relation of ejaculatory dysfunction with the severity of the SCI is not fully studied. Methods: A cross-sectional study was carried out in Cali, Colombia to evaluate aspects related to the sexuality of patients with SCI. Sociodemographic, clinical characteristics and sexual behavior were evaluated. A univariate, bivariate and multivariate analysis was performed. Results: 41 patients were evaluated. The mean age of the participants was 36.0±13.3 years old. 34 (82.9%) were male. 33 (80.5%) had cervical or thoracic lesions. 21 (53.7%) were by firearms. Most patients stated that the trauma kept them from engaging in satisfactory sexual activity in spite of having sexual desire. 16 (39.2%) had severe SCI (Type A, ASIA Scale). 40 (50.6%) had a severe compromise of their sexuality. 19 (46.3%) observed impossibility to ejaculate. Of the male patients, 19 (55.9%) had no ejaculation, with no differences according to the level of lesion, however, there was a difference in ejaculatory involvement according to the type of lesion (78.9% in type A, 42.86% in type C and 0% in type E) ($p < 0.05$). Conclusions: Spinal cord injury was more frequent in young male population, mainly with cervical or thoracic lesions by firearms. In patients with SCI the impossibility to ejaculate was observed only according to the severity and type of lesion and no with the level of the lesion.

Keywords: sexuality, spinal cord injury, disability, sexual desire, ejaculation, social violence, firearms.

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I. Introduction

Sexual function is a process that includes physiological, anatomical, and neuroendocrine variables that are influenced by social and psychological factors; including family, religion, and culture, necessary to recognize this sexual activity as a vital necessity. Spinal cord injury (SCI) involves the nervous system and has direct and varied effects on sexual function depending on the level and type of injury. The SCI forces a severe change in lifestyle, where generally young and self-sufficient individuals not only change their body image, but also the roles within the couple, the family and society, go from being a productive and independent individual to being dependent, not only financially but also in other areas, usually for the rest of their lives [2]. Sexual disorders have a variety of both organic and psychosocial etiologies and are more commonly mixed, which concur in patients with SCI. These range from depression, anxiety, difficulties in communication and interpersonal relationships and couple dysfunctions, on the basis of a neurological injury that is directly related to sexuality [3]. In Colombia, there is a high frequency of SCI´s in young men. Previous studies show a significant link association between the level of injury (rather than its type and severity) and morbidity and mortality in a hospital (intensive care units) [4], [5]. However, few studies have described this association in relation to the level and type or severity of SCI during general hospitalization and especially its impact on sexuality.

The objective of this study was to describe the clinical and epidemiological characteristics of SCI´s, particularly in relation to the level and severity of the injury, and its impact on the sexuality, analyzing them according to the sexual behavior and gender.

II. Materials And Methods

Use an observational descriptive study was carried out in the outpatient clinic of the physiatrist service (SCI clinic) of the Hospital Universitario del Valle in Cali, Colombia. An instrument for the collection of information was designed that included 81 different points. Since no specific research on this topic was observed in the bibliographic search. The sample size was calculated according with the type of the study based on the prevalence of SCI reported in previous studies in Colombia (4.5%) with an α error of 0.05 and a β error of 0.2. Prior to the study, a pilot test was carried out with twenty patients with a history of SCI´s, which allowed us to

detect difficulties in the answering of some questions, either due to the manner of asking the question or its content, which were reconsidered. Subsequently, a standardization process of the instrument was carried out. The final form included a structured survey that contained socio-demographic and clinical information, especially those related to the level of the injury, type of injury and its severity, the perception of their sexuality and their sexual behavior.

The study was approved by the institutional ethics committee and received a written informed consent. The type of study is a descriptive observational study. The inclusion criteria were being a patient with a diagnosis of a spinal cord injury (SCI), having over six months following from the trauma, being over 18 years of age and voluntarily consenting to participate in the study. The exclusion criteria were having a history of spinal cord injury prior to the trauma, having difficulties in understanding questions and not being able to attend the scheduled follow-up visit or the impossibility of having a home visit in each specific case. ASIA Classification was used to determine the severity of the lesion. Univariate, bivariate and multivariate analysis was performed. The statistical package was STATA-14.0. (Stata Corp LP) considering a level of significance when the probability value was less than 0.05.

III. Results

A total of 59 patients of both sexes attended the consultation, 46 patients meet the inclusion criteria (13 patients do not meet the inclusion criteria) (22.0%). 41 (89.1%) voluntarily agreed to participate in the study. The average age was 36.0±13.3 years. 34 (82.9%) were men and 7 (17%) were women. 20.5% of patients belonged to the lowest socioeconomic level (Stratum 1, range 1-6, DANE classification, National Department of Statistics), 21 (51%) lived with their partner in common law and 7% were married. 32 patients (78%) professed the Catholic faith, 19 (46%) had attended primary education and 32 (80.49%) were economically dependent on their families, although some worked. The vast majority were dependent on their livelihoods.

Most injuries were caused by firearms (53.6%); 16 (39.0%) were cervical, 24 (41.4%) were thoracic, 3 (7.3%) lumbar, 5 (12.2%) medullary cone injuries observed severity (Type A) (ASIA classification) (complete motor and sensory injury below the level of the injury). 21 (53.6%) of the patients had at least one year of having suffered the trauma. At least half of the patients interviewed had a severe compromise of their sexuality secondary to SCI, although they stated that sexual desire continued intact in the majority of patients. The highest percentage of erectile dysfunction was observed in the conus medullary tract, in lesser proportion in thoracic SCI (Figure 1). 16 (39.0%) patients reported not having sexual relations. 16 (39.2%) considered self-stimulation and six (14.6%) had erotic dreams as part of their sexual conduct. 13 (31.7%) patients had no sexual partner. 25 (54.3%) observed monogamy and 3 (6.5%) observed polygamy. Nineteen (55.9%) male patients no had ejaculation, more related with the severity of SCI (80%, type A); 42.8%, type C; 0% type E) ($p < 0.05$). Of the male patients, 19 (55.9%) had no ejaculation, with no differences according to the level of lesion; however, there was a difference in ejaculatory involvement according to the type of lesion (80% in type A, 42.86% in type C and 0% in type E) ($p < 0.05$) (Fig. 1). None of the patients reported having sex with people of the same sex.

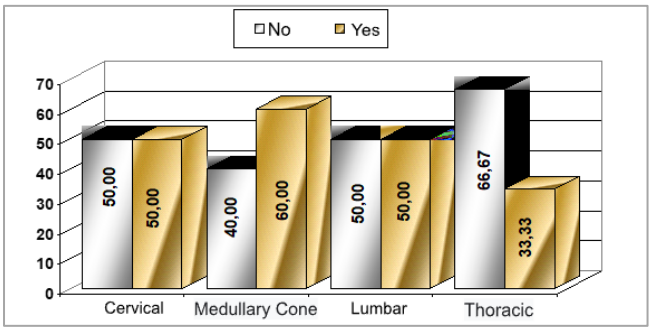

Fig. 1. Distribution according to ejaculatory capacity and level of injury (Men) (n=34) Hospital Universitario del Valle, Cali, Colombia.

IV. Discussion

Most patients studied with SCI, were young (an average age of 36 years) predominantly male, with more than half with injuries caused by firearms from a very low socio-economic level with low level of education. Most were economically dependent and lived with their families, most professed the Catholic faith, however half were united without a marriage bond.

The epidemiological profile of SCI was like that of the city of Cali, Colombia where the study was carried out, we think that it reflects the social problems of the city. Half of the patients included in the study had a severe compromise of their sexuality secondary to SCI, but they stated that they continued with sexual desire.

The results of this study allow us to reaffirm the consideration that SCI patients deny their sexuality or have compromised the expression of their sexuality. Ejaculation as part of the human sexual response in men fulfills two functions: the expulsion of semen for reproductive capacity and the personal satisfaction or feeling reaffirmed in his masculinity by being able to generate life. Different authors [4], [5] have applied instruments such as vibratory stimulators of the penis (PVS) to provoke ejaculation and obtain semen in patients with SCI, for which, as Bird *et al.* [6] demonstrated, a response of the bulb-cavernous reflex and the hip flexor is required. The bulb-cavernous reflex shows the integrity of the S2-S4 segment, in contrast, the presence of the hip flexion reflex is a pathological indicator, very frequent in patients with SCI. Different authors stated that in male patients, the positive response to these two reflexes, with a lesion between T1 and T6, had ejaculation in 94% of the cases. By contrast, none of them observed an absence of these reflexes. It was interesting to observe that in male patients with lesions between T7 and T12, ejaculation occurred in 67% of those who had a positive response to these two stimuli when compared with patients with SCI who did not respond to them.

In this study, it was very interesting to observe how ejaculatory compromise was related more to the severity and type of injury than to the level of the injury, meriting studies that delve into these aspects, while confirming research needs

and existed that were reported in other studies [6], [7]. The previous structure of sexuality in the patient with an SCI, and reflection of the sociocultural environment in which they developed, could be decisive in the sexual behavior that a person assumes when presenting neurological deficiencies. The individual is often immersed in a society that emphasizes the importance of intercourse, valuing the individual based on their performance and results, in addition to the media, where focus sexuality is centered on genitality and intercourse. Projecting this information in a negative way can become a barrier to the person with a spinal cord injury, hindering the approach and comprehensive management of sexuality in the injured at the spinal level.

The only thing the fact many patients refuse sexuality can do is to postpone this need, and over time produce people who are not very satisfied with the fulfillment of this need. A high proportion of patients without a partner were observed, accounting for a reflection of loneliness and marginalization. Sexual disorders have a variety of organic, psychosocial, and mixed etiologies, which concur in patients with SCI´s, from depression, anxiety, communication difficulties and interpersonal relationships, all of the above related to a neurological injury that this directly related to sexuality [7]. A comprehensive and interdisciplinary approach should be taken according to the results observed in this study. Family support should play a fundamental role in the rehabilitation program of these patients [8]. It is recognized that social support is an antagonist and buffer against the effect of organized stress, especially in patients with disabilities.

Health personnel often have to play the role of sex educator, for which they are not prepared, and there is a need in their training [8], to guide and educate society to accept people with disabilities. Likewise, so that these people accept themselves and feel capable of solving their own needs [1], [7].

The results of this study lead us to think about the need to explore and test other treatment alternatives where, despite the sensitive and motor compromise, couple techniques can be adapted to make full sexuality possible, exploring the sexual repertoire of the couple, including: fantasy, oral sex and sensory experiences in other areas of the body, if that is their desire [7], [9], [10].

As this study is a descriptive study in a population mostly of the male and vulnerable population, it allows for a variety of hypotheses for this segment of the population, which has very defined characteristics, making it difficult to extrapolate conclusions to the general population, however valid for them in a qualitative vision. The number of patients and their consequences, reflecting the current levels of violence in the city, limit their conclusions to the evaluated sample, especially in young men from the lowest socio-economic status [11], [12].

The patients were of legal age, who have likely already gone through the process of sexual formation and initiation, which is poorly calculated in a theoretical way, with guilt and other great setbacks. To better identify and recognize the impact of SCI´s on sexuality, follow-up studies are needed to assess the evolution and possible interventions. According to the evolution observed in patients with SCI´s, it would be interesting and necessary to carry out studies that include patients before the start of their sexual activity, since in this life cycle their sexuality is perceived differently and therefore various interventions may be needed.

The main contribution of this study is highlight that the absence of ejaculation in men with SCI´s is not due to the level of injury but rather the type of injury according to the severity of the same in opposition to that reported in previous studies carried out in patients admitted to intensive care units, where the level of injury, rather than its severity, were associated with mainly infectious morbidity, longer hospital stay and higher in-hospital mortality. There is evidence that the psychological impact on SCI is associated with depression and sexual dysfunction [13], as is the case of our patients studied who were young. Therefore, the rehabilitation approach must be comprehensive, with psychological and medical support, which can benefit the patient's quality of life [13]-[15]. A recent study carried out in veterans with post-traumatic stress observed a high percentage of sexual dysfunction, related to trauma that was not accompanied by cognitive or mood disorders, however depression as a confounding variable was not controlled [13], [16].

The limitation of the present study is that as it is a descriptive observational study, it only allows us to observe the phenomenon and launch hypotheses. Comparative studies are needed that include the same variables and with the same objectives that allow describing relative inequalities (Odds Ratios) in the patient with SCI with respect to their sexual behavior, in different populations that allow the results to be extrapolated to the general population [17]-[20].

INTEREST CONFLICT

The authors declare that they have no conflict of interest with the research or with the publication.

AUTHORS CONTRIBUTION

L.A.C. and B.A. conceived and performed the design of the study and secured funding. A.S.L. and R.V. performed the research work in the HUV hospital. J.A.H.M. wrote the manuscript. L.A.C. and B.A. provided expertise and feedback. Revised conceptualization, L.A.C. and B.A. Methodology: J.A.H.M.

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