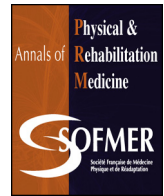




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Review

Assessment of sexual function in women with neurological disorders: A review

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ABSTRACT

Background: Although the rehabilitation of sexual function has been identified as a top priority among women presenting neurological conditions, sexual function is rarely assessed in this clinical group.

Objectives: To review published assessment tools of sexual dysfunction in women with neurological conditions including multiple sclerosis (MS), spinal cord injury (SCI), Parkinson disease, stroke, traumatic brain injury.

Methods: A systematic literature review was conducted with Medline via PubMed, PubMed Central, and Medline databases.

Results: There are three reliable methods to assess sexual dysfunctions in women with neurological conditions: physiological assessments of reflexes and perineal sensitivity testing, self-reporting questionnaires on sexual function and sexual satisfaction, and electrophysiological assessments. Physiological assessments of sacral and thoracolumbar reflexes have mainly been conducted among women with SCI. When performed, they reveal the existence of a psychogenic and/or reflex sexual potential in those women. Other forms of physiological assessments include vulvar sensitivity testing in women with SCI, quantitative sensory testing and pudendal somatosensory evoked potentials in MS populations. A few validated self-reporting measures are also available to assess sexual potential and sexual satisfaction, although mostly in women with SCI and MS.

Conclusion: Despite high prevalence rates and important clinical implications, sexual dysfunction is not systematically assessed in women presenting various neurological conditions. Several well-validated tools exist for such assessments, which could be used for sexual rehabilitation in these patients. The implementation of systematic assessments of sexual potential is feasible and renewed efforts should be made to do so in clinical practice.

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1. Introduction

Studies of women with neurological conditions have increased over the years, which suggests that overall, sexual concerns are present and require proper assessment and treatment to improve the quality of life in these populations. However, recent research still suggests unmet needs with regard to sexuality among neurological populations, thereby suggesting that health professionals still have room for improvement in their assessment of such needs [1].

Studies of women with spinal cord injury (SCI) and multiple sclerosis (MS) are probably the most prevalent and show that these women not only remain sexually active but also consider sexuality an important and sometimes essential part of their lives [2,3]. Empirical data for women with SCI indicate that sexual function, including vaginal lubrication and orgasm, is maintained [4–13]; however, sexuality can be associated with various difficulties for these women. In fact, desire, arousal, and orgasm are possible, but women report further concerns with urinary incontinence, pain, spasticity and the like, which are known to interfere with sexuality or the willingness to engage in sexual activities [14–18].

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Studies of women with MS reveal frequent reports of hypoactive sexual desire, decreased lubrication, orgasmic dysfunction and dyspareunia [19–32]. Overall, up to 85% of women with MS report one or more sexual dysfunctions, up to 35% report 5 or more dysfunctions, and up to 13% describe 10 or more sexual dysfunctions. The prevalence of sexual problems in this population seems higher as compared with other populations presenting chronic diseases, possibly given the relatively young age at symptom onset (i.e., thirties). Interestingly, 63% of patients never address the issue with their physician [33], even though sexual dysfunctions can appear with mild handicap [34] and are sometimes among the first signs of MS [26]. Importantly, sexual dysfunctions are often associated with urinary or bowel problems in up to one third of patients [27] and with depression [28].

For other populations with neurological conditions, women with stroke report decreased vaginal lubrication and reduced capacity for orgasm, along with diminished sexual desire, diminished frequency of intercourse, and diminished sexual satisfaction [35–43]. In contrast, some research also reports the existence of hypersexuality in women with stroke [44].

Sexual dysfunctions are also prevalent in women with traumatic brain injury (TBI). These patients report reduced libido and altered sexual arousal, along with an overall loss of sensation, anorgasmia, and dyspareunia [45–50]. Some data suggest that women with TBI in specific age groups (46–55 years old) might experience a more significant decrease in sexual functioning as compared with others [49]. Sexual satisfaction is also significantly diminished in this population [46,47], and longitudinal data suggest that sexual satisfaction remains unchanged from 6 to 12 months post-injury [48]. However, similar to other neurological populations, women with TBI can show hypersexuality and increased libido [45].

Women with Parkinson disease also report a plethora of sexual dysfunctions. In fact, 43% of cases feature loss of libido, which is correlated with age, depression, and cognitive impairment. In addition, 60% of women with Parkinson disease report dysfunctional vaginal lubrication, 87% orgasmic difficulties and 27% dyspareunia, the latter correlated with urinary and anorectal problems and with vaginal dryness [51–58].

Some patients with Parkinson disease and TBI have sexual problems other than the aforementioned sexual dysfunctions. In fact, impulsive sexual behaviours expressed as hypersexuality or excessive sexual behaviours are some characteristics. The manifestations of these problematic behaviours are several and include compulsive masturbation; repetitive sexual demands; compulsive use of pornography; prostitution; multiple sexual partners; compulsive quest for extramarital relationships; paraphilia such as fetishism, frotteurism, transvestitism, and zoophilia; changes in sexual orientation; and pedophilia, all of which become compulsive in up to 14% of patients (men and women undifferentiated) [56,57,59–66]. These various dysfunctions can be attributed to Parkinson disease, but some can also result in part from a psychiatric predisposition triggered by the disease onset or from the impact of dopaminergic treatments, which have been associated with impulse control disorders in 7% to 17% of patients [57,59].

Despite this abundant literature on sexual dysfunctions in women with various neurological conditions, the question of sexual assessment remains in limbo. With the above findings, a thorough sexual assessment should be required; evaluations of these patients should include assessments of remaining genital sensations, sexual responses, psychosocial issues related to sexuality and general sexual satisfaction, given the neurological deficits.

The purpose of this paper was to review the literature on the sexual assessments performed in women presenting various neurological conditions.

2. Methods

2.1. Search strategy

We searched for English or French articles published from 1982 to 2017 in Medline via PubMed by using terms related to the following 5 neurological conditions: spinal cord injury (SCI) (Fig. 1), multiple sclerosis (MS) (Fig. 2), stroke (Fig. 3), traumatic brain injury (TBI) (Fig. 4), and Parkinson disease (Fig. 5) combined with “sexuality” (e.g., stroke AND sexuality). From this initial search, the word “women” was added in order to select articles pertaining to our population of interest (e.g., stroke AND sexuality AND women).

Articles had to focus on human subjects and include quantitative data. The content had to focus on the assessment of sexual (dys)function. Studies pertaining solely to treatment and/or contributing factors of sexual (dys)function in women with neurological conditions were excluded. Relevant articles were screened by the reviewers based on titles and abstracts (when available), then full texts were retrieved.

3. Results

3.1. Clinical assessment of reflexes and perineal sensitivity

The literature on sexual function in women with SCI indicates that sexual responses are possible even with lesions to the spinal cord [6,10,13,67]. In fact, sexual potential has been differentially reported according to patients' neurological profile (i.e., their lesion level). Moreover, preserved sexual function has been differentially described with psychogenic or reflexogenic stimulation [7,9], the latter requiring sacral innervation and the former mediating responses via thoracolumbar (TL) innervation when sacral innervation is damaged.

Therefore, the first step toward sexual rehabilitation should include the assessment of reflex and psychogenic function after SCI (or any other neurological condition involving spinal or peripheral damage, such as MS or spina bifida).

Sacral reflexes involve the bulbocavernosus and anal reflex, along with voluntary contraction of the anal sphincter. The bulbocavernosus reflex is typically triggered by pinching the clitoris, that in turn triggers a reflex contraction of the bulbospongiosum muscle, which can be visually observed as a contraction of the vaginal opening, or by intravaginal palpation [3]. In general, clinical assessment involves a 3-point scale, with 0 indicating absence of reflex, 1 a doubtful reflex, and 2 a definite reflex response. The anal reflex is triggered by pinprick stimulation of the anal sphincter (left and right), which is responsible for a reflex contraction of the sphincter, also scored by the 3-point scale. The latter can also be used for assessing the voluntary contraction of the anal sphincter during rectal touch [68].

These reflexes assess the integrity of the sacral pathway, but assessment of sexual reflexes can include the hip and abdominal reflexes, the former associated with ejaculatory success in men with SCI [69] and the latter assessing the integrity of TL innervation responsible for psychogenic responses, which could be used in women as well. The hip reflex is triggered by flexion of the ankle, thereby initiating hip and knee oscillations [69,70]. The abdominal reflex is provoked by a gentle stroking of the lower abdomen, which is responsible for ipsilateral deviation of the umbilicus toward the stimulation site [71].

TL innervation can also be assessed with pinprick sensations of the TL dermatomes, which Sipski et al. [8–10] have demonstrated to be associated with maintenance of psychogenic stimulation in women with SCI. Women with little or no pinprick sensation in the TL dermatomes show poor, if any, vaginal responses (measured as

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