

## Impact of spinal injury with neurological consequences on sexual function: Sexual dysfunctions in women

### Wpływ urazu kręgosłupa powikłanego zaburzeniami neurologicznymi na funkcje seksualne – dysfunkcje seksualne u kobiet

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#### Key words

spinal injury with neurological consequences, women, sexual dysfunction, partner relationships, rehabilitation

#### Abstract

Patophysiological background of sexual dysfunctions in women after spine injury with neurological consequences (SINC) is a difficult object of scientific investigations and is not as accurately described as sexual impairment in men after SINC. In particular, systematic reports on pregnancy and its complications in women after SINC are lacking.

**Aim of the study:** Presentation of backgrounds and specificity of sexual disorders, dysfunctions of partner relationships and contraception in women after SINC.

**Method:** Literature review, authors' clinical experience.

**Results and conclusions:** Persons with sexual dysfunction following SINC should be subjected to psychological evaluation and specified sexual education. These specific interventions should be introduced at the appropriate time and take into account functional progress made during rehabilitation and the level of patients' acceptance of disability. Partner's involvement is crucial for effective psychotherapy of persons after SINC. A possibility to take the advantage of experience of other persons with a similar disorder is of particular value during the therapy. There is a positive correlation between the ability to experience sexual satisfaction and quality of social adaptation after SINC. The form, acceptance and efficiency of sexual education in persons after SINC are affected by cultural conditions.

#### Słowa kluczowe

uraz kręgosłupa powikłany zaburzeniami neurologicznymi, kobiety, dysfunkcje seksualne, relacje partnerskie, rehabilitacja

#### Streszczenie

Patofizjologia zaburzeń seksualnych u kobiet po urazie kręgosłupa powikłanego zaburzeniami neurologicznymi (UKPZN) jest trudnym obiektem badań i jest rzadziej opisywana niż analogiczne zaburzenia u mężczyzn. Istnieje niedobór systematycznych opracowań na temat przebiegu i powikłań ciąży u kobiet po UKPZN.

**Cel pracy:** Przedstawienie przyczyn, specyfiki i sposobów terapii dysfunkcji seksualnych, zaburzeń więzi partnerskich oraz problemów związanych z antykoncepcją u kobiet po UKPZN.

**Metoda:** Przegląd piśmiennictwa, własne doświadczenia kliniczne.

**Wyniki i wnioski:** Zaburzenia seksualne po UKPZN są wskazaniem do planowej opieki psychologicznej i wyspecjalizowanej edukacji seksualnej. Interwencje te powinny być wprowadzone we właściwym czasie z uwzględnieniem postępu funkcjonalnego rehabilitacji i stopnia akceptacji niepełnosprawności. W leczeniu zaburzeń seksualnych po UKPZN istotna jest psychoterapia z udziałem partnera. Szczególnie ważna jest możliwość skorzystania z indywidualnych doświadczeń innych osób niepełnosprawnych. Istnieje pozytywna korelacja zdolności do przeżywania satysfakcji seksualnej i jakości dostosowania społecznego osób po UKPZN. Sposób realizacji, akceptacja i efektywność edukacji seksualnej osób po UKPZN są uwarunkowane kulturowo.

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Authors' contribution: A – project of the study, work; B – collection of the data, information; C – statistical analysis; D – data interpretation; E – preparation of the manuscript; F – literature query; G – obtaining funds

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Sexual dysfunction is a product of two major factors: the physiological changes resulting from the neurological deficit – sequels of injury, such as autonomic dysreflexia, pain, spasticity, urinary tract infections, vaginal discharge, excessive sweating, disturbances in sphincter control and from the psycho-social consequences of disability. Sexual disturbances in women after spinal injury with neurological consequences (SINC) are less understood and described than those occurring in post-SINC men. Reports on fertility and the course of pregnancy in post-SINC women include only single case studies; however, systematic studies on the prevalence of pregnancies, complications and indices of normal births in women after SINC are lacking.<sup>1,2,3</sup>

### Pathophysiology of sexual and fertility disturbances in women after SINC

In approximately 60% of sexually mature pre-menopausal women, who had SINC, the menstrual cycle is stopped. Disturbances of hormonal control of the hypothalamic-pituitary axis with increased prolactin levels are the likely cause of this status.<sup>4,5</sup> Usually, recovery of menstruation occurs spontaneously after 5 months, yet, signs of abnormal metabolism of central neurotransmitters can be observed in 60-80% of women even long after SINC.<sup>5,6</sup> In a few cases, galactorrhoea occurs shortly after SINC that can recur in future during pregnancy or in when certain drugs are taken.<sup>4</sup>

Physiological reactions associated with sexual arousal (clitoral erection, vaginal moisturising) are controlled by spinal centres. In women with complete central nervous system damage at the level of sacral spinal cord, possibility of vaginal moisturising in response to reflex activation is preserved while moisturising in response to emotional stimuli is lost.<sup>3</sup> In persons with incomplete spinal damage, preservation of superficial cutaneous sensation in the regions supplied by the nerves stemming from the thoracic-lumbar segments D11-L2 constitutes a predictor of ca-

pability of vaginal moisturising in response to emotional sexual arousal.<sup>7</sup>

Orgasm is sometimes described as a complex reflex.<sup>7</sup> Ability to experience an orgasm is confirmed by approximately 50% of women after SINC. In the group of women with ASIA-A injury in the thoracic-lumbar segment, orgasm can be achieved in only 17% of women, whereas when the lesion is located in higher segments, ability to experience orgasm is preserved in 59% of the studied persons. Orgasm can be achieved as a result of imaginary stimulation. It was demonstrated that in women with complete spinal cord lesion at the cervical level, pleasant sensations are experienced by these women during coitus with deep vaginal penetration. It is suspected that this phenomenon may be associated with neural pathways linked to the vagus nerve.<sup>3,8</sup>

Seventy to eighty-eight percent of post-SINC women state that their sexual life following the injury is satisfactory. Spasticity, sensory disturbances, sphincter disturbances are listed among the most frequently reported problems with achieving full sexual satisfaction.<sup>2,5</sup> Occurrence of SINC stimulates sexually active women to search for alternative ways of achieving sexual contentment. Sexual life is perceived to a great extent as a way of experiencing closeness, emphasising an emotional relationship, an opportunity to focus on partner's needs.<sup>9</sup> Disturbances of the sensory system that make it impossible to achieve orgasm in response to stimulation of the primary erotogenic zones are the indication for a therapy combined with exploration of other zones that – when stimulated – would induce an orgasm. In the majority of studied women, these zones include areas of the breasts or the intermedial zone of sensory disturbances.

Prevalence of pregnancies in post-SINC women decreases down to 1/3 of that of the healthy population. Women with incomplete neurological deficit become more often pregnant.<sup>5</sup> Problems observed during pregnancy in women after SINC include: blood pressure disturbances associated with autonomic dysre-

flexia, decubitus, deep venous thrombosis, heart rhythm disturbances, incontinence, anaemia, lower limb oedema. Some complications of SINC such as urinary tract infection can constitute a direct threat to the foetus.<sup>5,8</sup> Effects of drugs taken by a pregnant woman (e.g. to control the increased muscle tone) on the foetus is sometimes problematic. Sensory deficit can be the cause of absent perception of the first phase of labour. During the second phase of labour, paresis or plegia of the abdominal muscles may disable an effective, conscious pushing during contractions. Approximately half of cases require caesarean section.<sup>5</sup> During births delivered by post-SINC women, premature widening of the cervix is frequently observed as well as low birth weight of the neonates. In women with spinal cord injury above the 6<sup>th</sup> thoracic segment, abrupt surges of blood pressure potentially occurring during labour induction, contractions and breast feeding can be threatening.<sup>2</sup>

### Contraception

Among contraceptive methods recommended for post-SINC women, mechanical and chemical barriers (condoms, spermicidal) are most frequently listed. Products of a mechanical barrier-type can prove to be difficult to apply by women with impaired manipulation and grasp function of the hand (following cervical spine injury). Such devices can be dislocated in persons, who apply hypogastric compression to facilitate urine outflow. Because of the increased risk of thrombotic complications, it is contraindicated to use estrogen-based hormonal agents. Progestagen-based preparations might be an alternative, yet, some of them can evoke irregular bleedings that could be problematic for persons having difficulties with personal hygiene maintenance. There is also evidence that women receiving progestagen-based contraception in injections are more prone to develop osteoporosis. Post-SINC persons usually demonstrate a reduced mineral bone density due to poor motor activity. Use of intra-uterine devices in post-SINC women remains contro-

versial. A threat of general infection due to chronic urinary tract infections and impaired perception of occurrence of symptoms of genital infection in many women after SINC<sup>2,8</sup> can be considered a reason against devices. Natural contraceptive methods may prove to be ineffective in cases of irregular menstrual cycles.

### Partnership relations

Spinal cord injury can lead to a marked decrease in the quality of social functioning of a disabled person. There is a widely accepted opinion that this also leads to libido reduction<sup>10</sup>. Twenty to twenty-two percent of post-SINC persons search for a help of psychologist, sexual therapist or psychiatrist because of problems with sexual adaptation after the injury<sup>10,11</sup>. SINC can but not necessarily actually causes partnership crisis. According to many researchers, 57-61% of post-SINC persons and 84% of their partners do experience satisfaction of their sexual life despite sometimes severe genital dysfunction. Approximately half of the questioned post-SINC persons state that they are capable of experiencing orgasms<sup>9,11</sup>. Contentment of sexual life, preferences and activity during pre-injury period of time all affect sexual adaptation after SINC. Sexual adaptation is associated with young age at injury, physical and social independence, absence of mood disturbances and openness for experimenting with alternative methods of sexual expression<sup>11</sup>. Forty-five percent of partners of disabled persons describe their sexual life as at least as good, if not even better, than that before partner's injury. Half of the studied couples make sex not rarer than once a week. Fifty-five percent of study participants is pleased with this frequency, while for 30% of the questioned persons state that this frequency is too low for them. From the partner's point of view, feeling of emotional closeness, will to engage in alternative sexual activities is perceived as more important than physiological aspects of sexuality<sup>9</sup>.

According to American data, over 50% of women after SINC do not obtain from physicians or other

health care professionals the expected information about the nature of sexual disturbances<sup>5</sup>. From our observations, it is evident that in Poland, this situation is much worse. Domains of the most significant lack of available information include issues associated with aging of a woman with post-SINC disability, course of menopause with accompanying untypical and difficult to diagnose gastrointestinal symptoms, increased incidence of urinary tract infections, complex mood disturbances, increased level of anxiety<sup>10,11</sup>. There is also a common lack of knowledge or even medical professionals' ignorance associated with these domains.

Inclusion into the process of complex management following SINC, sexual advising and education on the possibilities of fulfilling sexual needs is in accordance with the guidelines of contemporary rehabilitation and may significantly affect the quality of life in persons after spinal cord injury<sup>5,12,13,14</sup>. Education programs should take into account the specificity of perception of sexuality, emotional problems related to family adaptation that are different in males and females and depend on cultural background<sup>5</sup>.

In rehabilitation centres in Western Europe, such education involves educational movies explaining the nature of the disturbances and demonstrating various techniques useful during sexual intercourse<sup>12</sup>. Discussing topics associated with fertility, contraception and outlining real options of treatment of sexual dysfunctions is highly important for the disabled persons. Nonetheless, too early introduction of complex sexual education, e.g. during the early treatment phase in a rehabilitation ward, may not bring the expected effects because of the lack of appropriate awareness and perception of the nature of the problem<sup>15,16,17</sup>.

Authors of the German model of sexual rehabilitation in post-SINC persons stress out that natural adaptation to partnership-oriented sexual life after the injury is characterized by certain rules. The initial phase of depression and being unsure is followed by a phase of experimenting and discovering possibilities and limitations. Accepting of the speci-

ficity of disability enabling experiencing satisfaction is the final phase of adaptation. Each of the phases is specific and represents different needs in education, psychological and medical support<sup>18</sup>.

### Conclusions

Disturbances in sexual activity in women after SINC are complex and a difficult topic to study. Further evaluations of complications of pregnancy, labour as well as of standards of management of pregnant women after SINC are warranted. There are controversies as to the range of use of hormonal contraception and intra-uterine devices in post-SINC women.

Presence of sexual disturbances after SINC constitutes an indication for planned psychological care and specialized sexual education. These interventions should be introduced in appropriate time with consideration of the functional progress of rehabilitation and the degree of acceptance of own disability. In the therapy of sexual disturbances resulting from SINC, it is important to conduct psychotherapy with patient's partner. Possibility to take an advantage of other disabled persons is of particular importance. Shortage of widely available and professional information on the specificity of gynaecological and sexual disturbances and their treatment in post-SINC women is a commonly reported problem. There is a positive correlation between the ability to experience sexual satisfaction and the quality of social adjustment in persons after SINC.

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