



## Case report

## Problems with child care after successful pregnancy in a patient with spinal cord injury – a case study

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## ABSTRACT

**Introduction:** Pregnancy in spinal cord injury (SCI) patient's population is rare. The problems with child care are also rarely described in the literature.

**Aim:** To present a case of a woman with incomplete tetraplegia and problems during pregnancy and child care.

**Case study:** A case of a 30-year-old SCI woman with C5 fracture due to a motor vehicle accident is described. She was admitted to our neurorehabilitation ward with severe tetraparesis and discharged able to walk with assistance. After discharge, the patient was referred by a senior physical medicine specialist in our outpatient clinic, and 4 years after her SCI, she got pregnant. Beyond acute clinical problems related to SCI, many chronic medical issues arose, such as orthostatic hypertension and constipation during her pregnancy. After 39 weeks of pregnancy, she was admitted for caesarean section because of somatosensory problems and received epidural analgesia. She gave birth to a male baby, weighing 3500 g. During the first weeks after delivery until now, she has had several problems with baby care due to limb paresis and spasticity, which she could not predict before.

**Results and discussion:** For a mother with SCI, child care is restricted by many everyday problems occurring after delivery.

**Conclusions:** The management of pregnancy and delivery in this setting emphasises the importance of a multidisciplinary team. The knowledge of these problems can help prepare these patients for child care.

## 1. INTRODUCTION

In the United States, approximately 1000 new spinal cord injuries (SCIs) are reported per year in women 16–30 years old.<sup>1</sup> The annual incidence of SCI ranges from 3.6 to 195.4 patients per 1 000 000 around the world and the European countries have various valuable reports of SCI.<sup>2</sup> In Switzerland for women in young age (16–30 years) annual incidence rates per one million population for SCI were 8.1 (for tetraplegia 1.6).<sup>3</sup> Unfortunately we do not have similar registers in Poland. Pregnancy in SCI population is rare. Dramatic improvement in health outcomes for individuals with SCI over the last 50 years and more allows people with SCI to live full and complex lives, become pregnant and raise children. SCI itself does not affect the ability to conceive for this female population, but other factors, such as physical and psychosocial factors, may influence the decision to have a child.<sup>1</sup> Pregnancy exacerbates most problems affecting women with SCI. Women with lesions above the level of T6 of the spinal cord are susceptible to autonomic dysreflexia, spasms, breathing difficulties with advancing pregnancy, bradycardia and hypotension.<sup>4</sup> All women with SCI are at high risk of pressure ulcers, anaemia and urinary tract infections.<sup>5</sup> The literature contains papers concerning pregnancy problems in this female population, but the problems with child care are rarely discussed. Little is also known about the effects of physical disability secondary to SCI on child raising. To the best of our knowledge, the present report is the first case report describing pregnancy and child care problems of a Polish SCI patient with tetraparesis in the literature.

## 2. AIM

We present herein the case of a woman with incomplete tetraplegia, who after a SCI decided to get pregnant and her problems during pregnancy and child care.

## 3. CASE STUDY

A 30-year-old woman admitted to Mazovian Rehabilitation Centre in December 2011 after a motor vehicle accident. Magnetic resonance performed on the day of injury revealed a C5 vertebral body fracture and spinal cord contusion. According to the International Standards for Neurological Classification of Spinal Cord Injury, the patient had an incomplete lesion American Spinal Injury Association (ASIA) Impairment Scale (AIS) – C, motor score (MS) was 59 with a C5 neurologic injury level. The patient was intensively rehabilitated and discharged from our rehabilitation ward after 16 weeks and was able to walk with assistance of one person. During her rehabilitation program on our ward, several episodes of autonomic dysreflexia occurred. After discharge, neurologically, she presented tetraparesis at C5 (AIS-C, MS 89) level that was more pronounced on the right

side and upper limbs, pain and temperature disturbances more severe on the left side and hyperalgesia on both hands. She had problems with writing, dressing, feeding, grooming, locomotion and bladder dysfunction (neurogenic bladder-detrusor overactivity, no intermittent catheterisation was needed). After discharge, the patient was referred by a senior physical medicine specialist in our outpatient clinic.

During the first 2 years, her functional and neurological status improved. Just before pregnancy she was able to walk independently more than 100 m, she had poor knee stabilisation and foot drop, this caused difficulty in walking the stairs. She also had problems with writing and typing on a computer, driving a car, using a telephone and carrying loads over 4–5 kg because of her right-hand paresis. The neuropathic pain in her upper limbs and bladder dysfunction (urge incontinence) were present also at this time. After 1.5 years, she returned to work in the law faculty where she worked as an assistant professor. This limitation did not interfere with her professional career, and she became a university professor of aviation law. She got married and (4 years later SCI), she got pregnant.

Beyond acute clinical problems related to SCI such as orthostatic hypertension, sensory disturbances such as neuropathic pain and constipation, no episodes of autonomic dysreflexia, anaemia or urinary tract infection occurred during her pregnancy. After 39 weeks, she was admitted for caesarean section because of somatosensory impairment and received epidural analgesia. She did not feel uterine contractions. She gave birth to a male baby, weighing 3500 g. In the obstetrics ward, the patient met several architectonic barriers – lack of capacity to adapt to patients with disabilities (beds, bathrooms). For one week after childbirth, the patient used a wheelchair, because she felt very weak. The patient could not take care of the baby, and she had to pay extra money for care for her newborn baby. Since the first weeks after delivery until today (one and half years later) she has had several problems with baby care due to limb paresis and spasticity, which she could not predict before. Because of right limb paresis, she had difficulty with breastfeeding, she could not carry her baby and she had to hire a babysitter. She had severe problems with lifting her child, dressing and bathing. Later, she encountered difficulties with meal preparation and watching the baby. The problem with baby care was also increased by episodes of autonomic dysreflexia she had in the past after the injury, and she had the fear of falling down.

The limitation in child care was her biggest problem for fulfilling the role of motherhood. She felt unsuitable in the role of mother, and she was not prepared by any medical professional to fulfil the role of a parent.

## 4. DISCUSSION

Pregnancy exacerbates most problems affecting women with SCI, particularly urinary infections which can lead to pyelonephritis and premature labour.<sup>5</sup> No urinary infections occurred in our patient during pregnancy. In the literature,

the majority of changes in medical procedures are related to bladder management, including changes in medication and in bladder evacuation methods.<sup>5</sup> These changes led to an increased rate of urinary tract infections. Most anticholinergic drugs should not be taken, at least during the first trimester of pregnancy because foetal malformations were observed in animal experiments that used these drugs, and botulinum toxin is also not licensed for use during pregnancy.<sup>6</sup> Given this, an ineffective treatment of detrusor overactivity may occur, usually leading to incontinence, which is frequently treated by inserting an indwelling catheter, especially if intermittent catheterisation becomes more difficult during the course of pregnancy. The treatment option can be used of a Brindley stimulator, a sacral anterior root stimulator device enabling patients with a complete SCI to empty their bladders.<sup>7</sup> Patients with such a stimulation are less likely to develop urinary tract infections.<sup>7</sup>

Autonomic dysreflexia is one of the most dangerous complications during pregnancy in patients with tetraplegia or tetraparesis. Our patient had in the past, mostly during the first 3 months after injury, several incidents of autonomic dysreflexia, but during pregnancy she had only two incidents of a mild blood pressure rise. An SCI at the level of T6 or above results in loss of supraspinal control of the greater splanchnic sympathetic outflow. The potential causes of dysreflexia may include bladder and bowel distension, catheterisation, active haemorrhoids, gastric ulcers, constrictive clothing, blisters on the skin and burns or even vaginal evaluation in a consultation or during labor. Patients must be informed by medical staff of such a condition and their health implications and how to behave in this situation (fast verticalisation and empty the bladder). Practitioners managing labours in patients with SCI still need to be acutely aware of the possibility of autonomic dysreflexia and be well-versed in how to treat potential paroxysmal cardiovascular instability. Delayed or suboptimal management can lead to maternal intracranial bleeding, death and foetal bradycardia or heart rate irregularities due to paroxysmal hypertensive episodes.<sup>8</sup> Pharmacologic treatment of autonomic dysreflexia is nitrendipine sublingual or intravenous labetalol.<sup>8</sup> Pharmacological treatment should be individualised based on patient medical history and physical limitations. Our patients did not receive pharmacological prophylaxis.

There is an increased risk of thromboembolism in the first 6 months after SCI. Following this period, the risk is almost the same as that in the general population. This is attributed to vessel remodelling and other physiologic changes occurring below the level of SCI.<sup>9</sup> The combination of impaired mobility and the hypercoagulable state of pregnancy raises concerns for thromboembolic disease in women with SCI.<sup>10</sup> Studies in nonpregnant adults suggest a benefit of prophylaxis after acute SCI, but there are no data specific to women who became pregnant several years after SCI.<sup>11</sup> Despite these theoretical risks, insufficient data exist to recommend universal pharmacologic thromboprophylaxis (e.g., low-molecular-weight heparin) during pregnancy of all women with SCI. Pharmacologic treatment should be

individualised based on patient medical history and physical limitations.

Spasticity is also a very common sign in patients with SCI. Our patient did not take any antispastic drugs during pregnancy, but she had several problems with spasticity during pregnancy, which interfered with her child care. Her spasticity was not very severe, partly due to her private continuous rehabilitation program during pregnancy. In any pregnancy, planning this problem must be discussed with the patient because Jackson and Wadley reported a 12% incidence of worsening of spasticity in pregnancy.<sup>12</sup> Baclofen treatment of spasticity in pregnancy is applied, but it is associated with side effects, such as neonatal withdrawal symptoms, irritability, poor feeding and seizures.<sup>13</sup> An intrathecal pump can be an option in severe cases.<sup>14</sup>

Our patient, despite a C5 spinal cord lesion, did not suffer from respiratory problems. In lesions above T4, partial or complete paralysis of ventilation muscles may occur, which can make breathing more difficult as the pregnancy advances. The American College of Obstetrics and Gynecology recommends chest physiotherapy, continuous positive airway pressure and mechanical ventilation if respiratory function is suboptimal.<sup>15</sup> Vital capacity in patients with spinal injuries can be used to predict the need for ventilation.

The ability to provide child care by mothers with SCI is restricted by many everyday life problems, which can be very frustrating for women. People with disabilities are commonly viewed as asexual or sexually innocent, which can be a result of exclusion from sex education. Women with SCI in Poland are confronted with many barriers affecting their ability to carry a child. In Poland, we have no health-care providers with up-to-date information about SCI and pregnancy, and there is a need for these providers to be prepared to discuss in advance pregnancy problems with their patients/consumers with SCI. The patient can get the information about pregnancy mostly from other patients or from the Foundation of Active Rehabilitation. Our patient did not know about this foundation. During the pregnancy and after the delivery, the patient received information about child care but not adapted for a disabled person because the medical staff were unaware of her limitations caused by SCI.

In the United States, the SCI doctor is the primary source of information about SCI and pregnancy.<sup>16</sup> We think that creation of SCI centres may improve the situation for these patients. In our case, the obstetrics ward was not prepared to care for people with disabilities, and the staff were not familiar with problems or barriers in patients with disabilities. This problem should be more accurately discussed in the literature and during medical training for doctors and nurses in Poland.

The case study also indicates a lack of knowledge among health professionals at the obstetrics ward at the hospital about the needs of mothers with SCI. The same conclusion was described by Gunnbjorg Aune in Scandinavian hospitals.<sup>17</sup> The obstetrics ward to which our patient was admitted was not adapted for patients with disabilities like our patient with SCI. We think that more and more

female patients with disabilities will have babies, and it is very important to provide them with a comfortable delivery and hospital stay.

During pregnancy and as a parent, women with SCI have unique experience and challenges such as the need for practical arrangements and limitations related to participation. It should be emphasized that our patient did not have significant problems with returning and continuation of work, but she had severe problems with participation in various activities related to child care after giving birth. Now, she is still not able to look after her toddler, who plays inside and outside the house. Patients with SCI often depend on others. In Poland, a lack of knowledge exists about problems encountered in daily living by mothers with disabilities, primarily with SCI. Women with cervical SCI after childbearing need continuous help. Understanding how SCI affects pregnancy and child care is very important. Disability of mothers with SCI generates many additional costs. In Poland, there are no social services recommended to individuals with SCI to help with daily activities. We think this problem may restrict the decision of mothers in this population to give birth. Many women are concerned about their ability to care for a child and about lack of financial support. Our patient had to hire a babysitter because she could not take care of her child even though her disability did not interfere with her scientific career. It is also very important to perform investigations from the father's perspective and how family roles may change when one parent has a disability.

## 5. CONCLUSIONS

Although pregnancy outcomes seem to be favourable after SCI, women with disabilities may face problems during pregnancy and childbirth due to many barriers. We think that the management of pregnancy and delivery in this setting emphasises the importance of a multidisciplinary team. There is a large need in Poland to propagate the pregnancy, delivery and child care problems of women with SCI. It is very important to increase the competence of the care deliverer as rehabilitation specialist, physiotherapist, midwives etc. There is currently a lack of para- and tetraplegic rehabilitation/care centres for SCI patients in Poland.

## Conflict of interest

None declared.

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