Increased rates of certain complications and adverse obstetric outcomes have been reported in women with physical disabilities, including spinal cord injury (SCI). A recent Task Force on pregnancy in women with physical disabilities convened by the National Institutes of Health has summarized such risks, but it failed to make specific recommendations because of the lack of well-designed studies and robust scientific evidence of the impact of interventions. While waiting for the establishment of a systematic and comprehensive registry of pregnancy course and outcomes in women with SCI, it is important to assist health care providers in selecting interventions or implementing monitoring tools to optimize pregnancy outcome. The goal of the present document is to fill in this gap in guidelines and recommendations.

Caveat

Guidelines for obstetric care in pregnancy are divided into “Level 1 Recommendations” and “Level 2 Recommendations.” “Level 1 Recommendations” are used when the benefits of an intervention clearly or most likely outweigh the risks and burdens. Given the absence of randomized clinical trials for spinal cord injury in pregnancy, such level recommendations are based on evidence from observational studies or clinical experience. Just because there is no high-quality evidence, it does not mean that recommendations cannot be given, drawing from the available evidence and experience. “Level 2 Recommendations,” on the other hand, are suggestions based on indirect evidence of benefit or experts’ opinion.

Level 1 Recommendations:

- Assess for adequacy of intake of vitamins and minerals: Iron-deficiency anemia has been reported in the majority of women with SCI. Iron supplementation should be accompanied by appropriate attention to bowel function, since both pregnancy and iron intake may cause constipation. Vitamin D deficiency should be assessed and treated appropriately, given the effects of SCI on the musculoskeletal system and the beneficial effect of vitamin D for prevention of preeclampsia and reduced risk of low birth weight. Folate deficiency may develop in women requiring anticonvulsant agents, necessitating higher folate (3-4 mg daily) supplementation.

- Obtain a urine culture periodically (e.g., monthly) and anytime the patient reports complaints of autonomic dysreflexia: Urinary infectious complications, including pyelonephritis, are more frequent and severe in pregnant women with SCI.

- As one third of urinary infections in people with SCI are polymicrobial, with a mix of gram negative and gram positive bacteria, request antibiogram to guide antibiotic therapy in case of UTI or prescribe broad spectrum antibiotics (i.e., amoxicillin, second generation cephalosporin) for empiric treatment.

- Complicated UTI (i.e. those associated with comorbid conditions, such as an indwelling catheter) require prolonged treatment (10-21 days).

- Carefully examine the skin at each prenatal visit to diagnose pressure ulcers in a timely fashion. Early recognition is key to effective treatment. Complications and treatment of pressure ulcers are the same during pregnancy as in the non-pregnant state. Prevention remains the cornerstone, and pregnancy-specific preventive recommendations include more frequent changes in body position, increased padding of wheelchairs, and greater attention to limiting weight gain during pregnancy.

- Rates of low birth weight and prematurity are doubled in women with SCI compared with expected. Timely diagnosis of preterm labor may allow administration of corticosteroids for fetal lung maturity and may prevent unplanned home deliveries or unsupervised hospital deliveries. The following measures are recommended:
  - Instruct women on techniques of self-uterine palpation to detect contractions at home.
  - Perform vaginal examinations at obstetric visits after 24 weeks to detect early signs of cervical effacement and dilation.
41% of women with SCI. Risk factors for autonomic dysreflexia are presence of lesions above T6-T8 and history of dysreflexia before pregnancy. The epidural catheter may be left in place after delivery to provide additional anesthesia if the woman experiences autonomic dysreflexia from uterine contractions in the immediate post-partum period.

- Autonomic dysreflexia can be associated with non-reassuring fetal heart rate tracing. In such cases, correction of the causes of autonomic dysreflexia will improve fetal status as well.
- Limit cesarean section to standard obstetric indications. SCI per se is not an indication for cesarean delivery.

**Level 2 Recommendations:**

- Antibiotic suppressive therapy throughout pregnancy may reduce the rate of urinary tract infection. A weekly oral cyclic antibiotic program may be helpful.
- Request renal function assessment (creatinine clearance or renal ultrasonography) in women with SCI and a history of recurrent pyelonephritis.
- In women with high spinal lesions, serial assessment of vital capacity may be required to establish the need for ventilatory assistance (usually recommended for vital capacity below 13 to 15 mL/kg of body weight).
- If autonomic dysreflexia occurs despite regional anesthesia during labor, it can be treated with antihypertensive medications (e.g. labetalol, hydralazine) as indicated in the recent AGOG Committee Opinion, magnesium sulfate injection, or expediting vaginal or cesarean delivery.
- The benefit of deep breathing exercises (e.g. incentive spirometer), chest physical therapy and intermittent positive pressure breathing in the prevention of respiratory complications has been documented in the general SCI population and it is plausibly beneficial also for pregnant women with SCI.
- Additional and more expensive measures to predict risk of spontaneous prematurity may include:
  - Ultrasonographic measurements of cervical length at 18 and 22 weeks;  
  - Obtaining home uterine activity monitoring after fetal viability.

**REFERENCES**