

# Long-term rates of bladder dysfunction after decompression in patients with cauda equina syndrome

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**BACKGROUND CONTEXT:** Cauda equina syndrome (CES) occurs due to compression of the lumbar and sacral nerve roots and is considered a surgical emergency. Although the condition is relatively rare, the associated morbidity can be devastating to patients. While substantial research has been conducted on the timing of treatment, the literature regarding long-term rates of bladder dysfunction in CES patients is scarce.

**PURPOSE:** The aim of this study was to identify long-term rates of bladder dysfunction in CES patients and to compare those rates to non-CES patients who underwent similar spinal decompression.

**STUDY DESIGN/SETTING:** Retrospective database study.

**PATIENT SAMPLE:** The CES cohort was comprised of 2,362 patients who underwent decompression surgery following CES diagnosis with a 5-year follow-up. These patients were matched to 9,448 non-CES control patients who underwent spinal decompression without a diagnosis of CES.

**OUTCOME MEASURES:** Diagnosis of bladder dysfunction, surgical procedure to address bladder dysfunction.

**METHODS:** Using the national insurance claims database, PearlDiver, CES patients who underwent decompression surgery were identified and 1:4 matched to non-CES patients who underwent similar spinal decompression surgery. The 1-year, 3-year, and 5-year rates of progression to a bladder dysfunction diagnosis and surgical intervention to manage bladder dysfunction were recorded. The CES and non-CES groups were compared with univariate testing, and an analysis of risk factors for bladder dysfunction was performed with multivariate logistic regression analysis.

**RESULTS:** A total of 2,362 CES patients who underwent decompression surgery were identified and matched to 9,448 non-CES control patients. After 5 years, CES patients had a 10%–12% increased absolute risk of continued bladder dysfunction and a 0.7%–0.9% increased absolute risk of undergoing a surgical procedure for bladder dysfunction, as compared to matched non-CES patients. Multivariate analysis controlling for age, sex, obesity, tobacco use, and diabetes, identified CES as independently associated with increased 5-year risk for bladder dysfunction diagnosis (odds ratio [OR]: 1.72; 95% confidence interval [CI] 1.56–1.89;  $p < .001$ ) and procedure (OR: 1.40; 95% CI 1.07–1.81;  $p = .012$ ).

**CONCLUSIONS:** Understanding the long-term risk for bladder dysfunction in CES patients is important for the future care and counselling of patients. Compared to non-CES patients who underwent similar spinal decompression, CES patients were observed to have a significantly higher long-term likelihood for both bladder dysfunction diagnosis and urologic surgical procedure.

## Areas for reflection

- What pathways exist in your area to support people with Cauda Equina Syndrome and any long term bladder problems they may have?
- How can we improve identification of bladder dysfunction in this patient group?

Our website provides more training and information on bladder dysfunction, including information specific to spinal cord injury. [Click here to read more.](#)