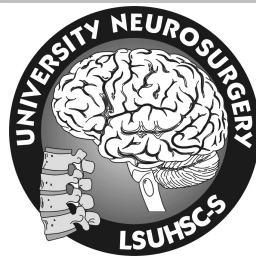


The Impact of Transfers, Delay in Surgery and Weekend Operations on the Outcomes of Patients with Cauda Equina Syndrome (CES): Analysis of Nationwide Inpatient Sample Database, Years 2005-2009

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Introduction

Cauda equina syndrome (CES) is a severe neurological condition that is caused by the compression of the cauda equina(1). Symptoms of CES can include chronic back pain and sciatica progressing to weakness and loss of bowel and bladder function(1). There is a great amount of controversy regarding timing of surgical intervention (2). Some studies have suggested that all intervention should be done within 48 hours(1), while others suggest that time is not a critical factor in patient outcome(2). In this study we use the Nationwide Inpatient Sample Database to analyze outcome of patients with CES.

Methods

The NIS database was studied for the patients with the diagnosis of cauda equina syndrome from years 2005-2009. Both surgical complications and non-surgical variables were analyzed. A discharge disposition coded as "routine" in the data set was taken as good discharge disposition. Chi-square and multivariate binary logistic regression models were used for analysis.

Results

1635 patients were analyzed with a mean age of 53.3 years. After logistical regression, the following variables were not significant for worse outcome: meningitis ($p=0.99$), wound infection ($p=0.99$), nerve root injury ($p=0.113$), and paralytic ileus ($p=0.99$). However, UTI ($p<0.01$), being elderly (age over 65) ($p<0.01$), having been transferred from another facility ($p<0.05$), surgery later than 24 hours after being evaluated ($p<0.05$), and having surgery on the weekend ($p<0.05$), and dural tears ($p=0.015$) were all significant for a worse outcome. See Figure 1.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of cauda equina syndrome, 2) discuss in small groups the effect of transfer and delay in surgery and 3) identify an effective timely treatment of CES.

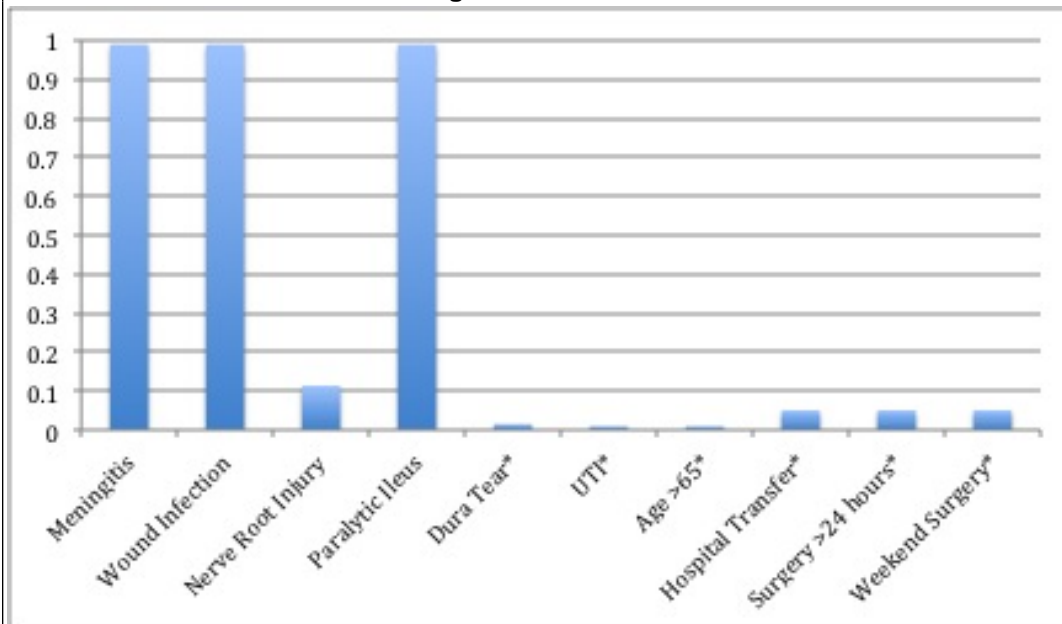
References

1. Daniels EW, Gordon Z, French K, Ahn UM, Ahn NU. Review of medicolegal cases for cauda equina syndrome: what factors lead to an adverse outcome for the provider? *Orthopedics* 34:e414-e419, 2012.
2. Todd NV. For debate—guidelines for the management of suspected cauda equina syndrome. *British Journal of Neurosurgery* 24:387-390, 2010

Conclusions

Worse outcomes in CES patients can be attributed to being over 65, having a dural tear, and having a urinary tract infection and are strikingly associated with being transferred from another facility, surgery greater than 24 hours after index admission, and surgery on the weekend. We urge prompt evaluation and surgical intervention within the first 24 hours of diagnosis of cauda equina syndrome.

Figure 1: P-Values



Factors Associated and Unassociated with Cauda Equina Syndrome Outcomes

*Significant factors are less than 0.05