Cauda equina syndrome outcome

There is significant heterogeneity in outcome reporting for Cauda equina syndrome (CES), which does not allow data synthesis between studies. The hypothesis is that a COS for CES can be developed for future research studies using patients and healthcare professionals (HCPs) as key stakeholders.

Methods and findings: Qualitative semi-structured interviews with CES patients were audio-recorded, transcribed and analyzed using NVivo to identify the outcomes of importance. These were combined with the outcomes obtained from a published systematic literature review of CES patients. The outcomes were grouped into a list of 37, for rating through two rounds of an international Delphi survey according to pre-set criteria. The Delphi survey had an overall response rate of 63% and included 172 participants (104 patients, 68 HCPs) from 14 countries who completed both rounds. Thirteen outcomes reached consensus at the end of the Delphi survey and there was no attrition bias detected. The results were discussed at an international consensus meeting attended by 34 key stakeholders (16 patients and 18 HCPs) from 8 countries. A further three outcomes were agreed to be included. There was no selection bias detected at the consensus meeting. There are 16 outcomes in total in the CESCOS.

Discussion: This is the first study in the literature that has determined the core outcomes in CES using a transparent international consensus process involving healthcare professionals and CES patients as key stakeholders. This COS is recommended as the most important outcomes to be reported in any research study investigating CES outcomes and will allow evidence synthesis in CES [1)].

There was a clear correlation between the presence of complete perineal anesthesia and significant sphincter dysfunction as both univariate and multivariate predictors of a poor overall outcome. The association between a slower onset of CES and a more favorable outcome did not reach statistical significance (P = 0.052). No correlation could be found between initial motor function loss, bilateral sciatica, level or cause of injury as predictors of a poor outcome (P>0.05). CES can be diagnosed early by judicious physical examination, with particular attention to perineal sensation and a history of urinary dysfunction. The most important factors identified in this series as predictors of a favorable outcome in CES were early diagnosis and early decompression [2)].

Cauda Equina Syndrome (CES) can cause persisting life-changing dysfunction. There is scarce literature regarding the long-term assessment of CES symptoms, and rarer still is the impact of these symptoms on mental wellbeing investigated. This study assessed the long-term patient reported mental wellbeing outcomes of post-operative CES patients.

Methods: Patients who underwent surgery for CES between August 2013 and November 2014 were identified using an ethically approved database. They then completed validated questionnaires over the telephone assessing their mental and physical functioning (Short-Form 12 Questionnaire), generating the Physical Component Summary (PCS) and Mental Component Summary (MCS). Bladder, bowel and sexual function were also assessed using validated questionnaires. MCS scores were compared to both the Scottish mean and previously published cut-offs indicating patients at risk of depression. Correlations of MCS with bladder, bowel, sexual and physical dysfunction were examined and multifactorial regression to predict MCS from these variables analysed. Independent t-tests assessed the mean difference in MCS between patients presenting with incomplete CES (CES-I) and

CES with retention (CES-R) and between those with radiologically confirmed and impending CES.

Results: Forty-six participants with a mean follow-up time of 43 months completed the study. The mean (±SD) MCS was 49 (±11.8) with 22% demonstrating poor mental health related quality of life in comparison to the Scottish mean. Overall, 37% had scores consistent with being at risk for depression with in the last 30 days, and 45% within the last 12 months. MCS was significantly correlated with Urinary Symptoms Profile (USP) score (-0.608), NBDS score (-0.556), ASEX score (-0.349) and PCS score (0.413) with worse bladder, bowel, sexual and physical dysfunction associated with worse MCS score. Multifactorial regression analysis demonstrated both urinary (USP score p = 0.031) and bowel function (NBDS score p = 0.009) to be significant predictive variables of mental health related quality of life. There were no significant mean differences in MCS between those presenting with CES-I and CES-R or those with radiologically complete and impending CES.

Discussion: This study demonstrates a high frequency of being at risk for depression in patients with CES and identifies outcome measures (physical, sexual and more so bladder and bowel dysfunction) associated with poorer mental wellbeing. Our large cohort and long follow-up highlight that CES patients should be considered at risk of depression, and the need to consider mental health outcomes following CES surgery. [3)]

The prognosis for complete recovery is dependent upon many factors. The most important of these is the severity and duration of compression upon the damaged nerve(s). Generally, the longer the time before intervention to remove the compression causing nerve damage, the greater the damage caused to the nerve(s).

Damage can be so severe that nerve regrowth is impossible, and the nerve damage will be permanent. In cases where the nerve has been damaged but is still capable of regrowth, recovery time is widely variable. Surgical intervention with decompression of the cauda equina can assist recovery. Delayed or severe nerve damage can mean up to several years' recovery time because nerve growth is exceptionally slow.

Review of the literature indicates that around 50-70% of patients have urinary retention (CES-R) on presentation with 30-50% having an incomplete syndrome (CES-I). The latter group, especially if the history is less than a few days, usually requires an emergency MRI to confirm the diagnosis followed by prompt decompression. CES-I with its more favorable prognosis may become CES-R at a later stage [4)]

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