PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (http://bmjopen.bmj.com/site/about/resources/checklist.pdf) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

This paper was submitted to another journal from BMJ but declined for publication following peer review. The authors addressed the reviewers’ comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

(This paper received three reviews from its previous journal but only two reviewers agreed to published their review.)

ARTICLE DETAILS

<table>
<thead>
<tr>
<th>TITLE (PROVISIONAL)</th>
<th>Understanding Cauda Equina Syndrome: protocol for a United Kingdom multi-centre prospective observational cohort study</th>
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<tbody>
<tr>
<td>AUTHORS</td>
<td>Woodfield, Julie; Hoeritzauer, Ingrid; Jamjoom, Aimun A.B.; Pronin, Savva; Srikandarajah, Nisaharan; Poon, Michael; Roy, Holly; Demetriades, Andreas; Sell, Philip; Eames, Niall; Statham, Patrick; Research Collaborative, British Neurosurgical Trainee</td>
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VERSION 1 – REVIEW

<table>
<thead>
<tr>
<th>REVIEWER</th>
<th>N V Todd</th>
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<tbody>
<tr>
<td></td>
<td>Newcastle Nuffield Hospital, Clayton Rd, Newcastle upon Tyne</td>
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<tr>
<td>REVIEW RETURNED</td>
<td>20-Jul-2018</td>
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</tbody>
</table>

GENERAL COMMENTS

The authors might wish to restrict the study only to patients with disc prolapses. This will be the largest group anyway. I do not believe that other pathologies causing CES such as for example spinal stenosis, cancer or infection are directly comparable to CES caused by lumbar disc prolapses. As a minimum the authors should say prospectively that the disc prolapse patients will be analysed separately.

The neurogenic bowel score was based upon patients with spinal cord injury and it contains a domain that addresses autonomic dysreflexia which will not be an issue in the CES patients. The score will need to be modified to exclude that domain.

The subclassifications of CES could include CESE (CES early) [Todd NV BJNS 1917] which is point in the evolution of CES just prior to CESI.

This could be a hugely important study. It will simultaneously be the largest study of CES patients ever and the only prospective study. I strongly support this study.

<table>
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<th>REVIEWER</th>
<th>Sashin Ahuja</th>
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<td></td>
<td>University Hospital of Wales. UK</td>
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<tr>
<td>REVIEW RETURNED</td>
<td>05-Aug-2018</td>
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</table>

GENERAL COMMENTS

The authors outline the assessment and scoring of the symptoms on Page8 Line 45-(P8L45).
One assumes that the clinicial assessment data sheet would include
the clinical examination (eg assessment of perianal sensations and
digital per rectal examination etc) and maybe post void bladder scan.
Are the authors hoping to assess the specificity and sensitivity of
these clinical signs taking into account the power of the study with
the total number of patients that they are hoping to recruit.

VERSIO 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: N V Todd
Institution and Country: Newcastle Nuffield Hospital, Clayton Rd, Newcastle upon Tyne
Please state any competing interests or state ‘None declared’: None declared.

Please leave your comments for the authors below
The authors might wish to restrict the study only to patients with disc prolapses. This will be the
largest group anyway. I do not believe that other pathologies causing CES such as for example spinal
stenosis, cancer or infection are directly comparable to CES caused by lumbar disc prolapses. As a
minimum the authors should say prospectively that the disc prolapse patients will be analysed
separately.

We have added that results will be analysed by causative pathology. We expect most cases to be
caused by disc prolapse.

The neurogenic bowel score was based upon patients with spinal cord injury and it contains a domain
that addresses autonomic dysreflexia which will not be an issue in the CES patients. The score will
need to be modified to exclude that domain.

This will be undertaken during analysis of the results. We have added a statement about using the
relevant sections of the outcome measures.

The subclassifications of CES could include CESE (CES early) [Todd NV BJNS 1917] which is point
in the evolution of CES just prior to CESI.

We have added early CES as a potential category.

This could be a hugely important study. It will simultaneously be the largest study of CES patients
ever and the only prospective study. I strongly support this study.

Thank you very much for the support.

Reviewer: 2
Reviewer Name: Sashin Ahuja
Institution and Country: University Hospital of Wales. UK
Please state any competing interests or state ‘None declared’: None to declare

Please leave your comments for the authors below
The authors outline the assessment and scoring of the symptoms on Page8 Line 45-(P8L45).
One assumes that the clinical assessment data sheet would include the clinical examination (eg
assessment of perianal sensations and digital per rectal examination etc) and maybe post void
bladder scan. Are the authors hoping to assess the specificity and sensitivity of these clinical signs
taking into account the power of the study with the total number of patients that they are hoping to
recruit.

Thank you for your comments. The data collected includes all of the clinical assessments mentioned.
We will be reporting the frequency of all of these findings in the cohort. We cannot assess the
sensitivity and specificity of signs and symptoms in predicting radiological cauda equina compression
because we are not including those without radiological cauda equina compression in this study.
Calculating sensitivity and specificity of clinical signs involves including those with and without the
condition of interest. This is a cohort study that only includes those with clinical and radiological cauda
equina compression.