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More questions than answers to the diagnosis and management of cauda equina syndrome—authors' reply

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We have read the correspondence from Grevitt[1] regarding the diagnosis of cauda equina syndrome (CES) used in our study.[2] We included those with a diagnosis of clinical cauda equina syndrome (CES) and structural compression of the cauda equina on imaging as determined by the treating clinician.[3] The description of clinical CES was based on literature review,[4] adjusted using UK guidelines for CES[5] and discussion between the steering committee and participating centres. The study aimed to include and describe those treated as CES in usual UK practice,[1] recognising that individual clinicians may have different thresholds for diagnosis.

Although clinical features expectedly overlap with the NICE red flags referenced by Grevitt,[1] the red flags are to assist with determining need for further assessment or investigation. They are not diagnostic criteria for CES and cannot be and were not used as such. The extent of radiological cauda equina compression was not specified in the study inclusion criteria.[2,3] After inclusion, we recorded the proportion of the diameter of the canal occluded on axial T2 MRI in the following categories: <25%; ≥25% & <50%, ≥50 & <75%; ≥75%. All participants had ≥50% canal occlusion. Implicit in the suggestion that patients who did not have CES were included,[1] is an assumption that there is a tidy consensus definition for CES. However, there is no agreed literature definition of CES,[4] and therefore the concept of diagnostic specificity does not apply.

Our study protocol aimed to assign participants to categories described through expert opinion: early, suspected, incomplete, or with retention.[3] However, when independent raters reviewed the clinical data of 100 participants along with published definitions of the categories, the interrater reliability for assigning participants to categories was low (Fleiss's kappa = 0.31), with participants assigned to different categories by different raters. The low reliability is likely due to perceptions and interpretations of the categories and the variability and range of symptoms experienced by patients. A low inter-rater reliability does not imply that participants do not have CES, but that the categories as they are currently defined are not reliable or informative for stratification.

We used catheterisation as a crude marker of severe urinary dysfunction because it was an objective measure that could be determined in every case. It has also been used previously in influential reviews on the timing of surgery in CES.[6] The symptom of urinary retention was not used in association with outcomes.[2] Where we report outcomes based on catheterisation pre-operatively, these apply only to a pragmatic subdivision of patients who were managed as CES and required a catheter pre-operatively. This data is useful clinically for discussing and predicting outcomes. Those with back pain and sciatica may experience urinary retention due to dysfunction of the cauda equina nerve roots, pain, medications, or panic,[7] and accurately determining

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the cause or type of retention using clinical assessment and bedside tests can be challenging and unreliable. Our catheterised patients may be difficult to compare with other studies due to different thresholds for catheterisation and approaches to bladder management, but they represent the range of practice across the UK.[2]

Grevitt's comments that a low threshold for obtaining an MRI scan in suspected CES will have resource implications and potentially lead to overtreatment, with inevitable avoidable complications,[1] is a reasonable concern, but is outside the remit of this paper, which describes current practice and outcomes for those with CES.

We all agree that working out who will benefit from decompression at which time is a complex issue. Observing outcomes from current clinical practice is only the first step, and we did not expect to deliver all the answers for this complex condition. The study reflects the grey areas of current practice along with clinicians' intuitive appreciation of CES and individualised patient management. There is a need for the scientific evidence to inform clinical practice for patient benefit which is distinct and independent from medicolegal confounding factors. The data in the paper are more inclusive and comprehensive than any before but answers to the big questions will not come from observational data until definitions are agreed.

Contributors

Writing of draft letter: JW, PFXS; Review and editing of draft: JW, IH, AABJ, SL, SP, CJH, AW, LH, RDCM, HR, MTCP, PT, NS, AKD, NE, PJS, PFXS.

Declaration of interests

JW, AABJ, SL, SP, CJH, AW, LH, RDCM, HR, MTCP, NS, NE, and PJS declare no conflicts of interest during the study or within 3 years of the work being submitted. IH declares support for attending meetings and payment or honoraria for speaking about functional neurological disorders (including persistent postural perceptual dizziness) at conferences and meetings. IH has received payment for expert testimony on idiopathic urinary retention. PFXS has received payment for expert testimony, acting for a number of both claimants and defenders in cases of Cauda Equina Syndrome, roughly in the proportion 2/3 defender, 1/3 claimant over about 20 years. PT has received payment for expert testimony for Cauda Equina Syndrome cases for DAC Beachcroft, Aspire Law, Bevan Brittan LLP, Stephensons LLP, Moore Barlow Ltd, Scott Rees & Co, and Premex/Premex +. AKD declares payment or honoraria for speaking for Integra, Stryker, and Safe Orthopaedics. AKD declares leadership board roles (unpaid) for Global Neuro Foundation and European Association of Neurosurgical Societies.

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