Reviewer's report

Title: Individual patient data meta-analysis of ultrasonography of optic nerve sheath diameter for detecting raised intracranial pressure: protocol of the ONSD Research Group

Version: 1 Date: 12 March 2013

Reviewer: Gavin B Stewart

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Don’t forget quality comment- what quality schism will justify subgroups

This is a very well written protocol to support what is clearly a well thought out IPD review. I have suggested a number of minor amendments for consideration.

1) The title does not clearly reflect that this is a protocol for a systematic review and IPD meta-analysis. I accept that protocols are less likely to exist for non-systematic review ipd meta-analyses but would prefer the following title.

“INDIVIDUAL PATIENT DATA SYSTEMATIC REVIEW AND META-ANALYSIS OF ULTRASONOGRAPHY OF OPTIC NERVE SHEATH DIAMETER FOR DETECTING RAISED INTRACRANIAL PRESSURE: PROTOCOL OF THE ONSD RESEARCH GROUP”

2) The authors state the rationale for the use of IPD as generic use of a gold standard, increased statistical power and definition of a cut off value for ONSD ultrasonography. I would welcome further details of all three.

a. Are there known specific reporting, quality or definition issues encountered in the aggregate review undertaken by the authors that would be addressed by use of IPD?

b. Was statistical power limited and how will use of IPD increase power (Are extra studies available in IPD form or does the increased power rely on combining within study and across study information, where exchangeability assumptions may limit any power increases?)

c. How were attempts to define cut-off values hampered in the aggregate review and why is the definition of the cut off value so important?

3) The rationale underlying secondary objectives needs greater definition. Is this purely exploratory or are there particular reasons for believing that specific groups of patients would result in different diagnostic accuracy? Are there any interactions anticipated between patient characteristics or patient and study characteristics? If this is exploratory, then I would explicitly state that this is the case. Similarly, the study characteristics require greater definition and rationale particularly in the case of quality. I would strongly encourage a priori definition of any quality cut-off threshold and consider any stratification within this as a form of sensitivity analysis.

4) Is there any important variation in the way that ultrasonography is delivered
that could impinge on the diagnostic accuracy and do you have any plans for exploring any resultant heterogeneity arising from that?
5) Greater clarity about how knowledge of cut-off values will inform future research would also be valuable
6) Typo in data collection “studies” level data should read “study level data”