Author's response to reviews

Title: Perinatal complications and socio-economic differences in cerebral palsy in Sweden - a national cohort study

Authors:

Anders Hjern (anders.hjern@socialstyrelsen.se)
Kristina Thorngren-Jerneck (kristina.thorngren-jerneck@med.lu.se)

Version: 2 Date: 10 May 2008

Author's response to reviews:

Dear editor,

We have revised our article “Perinatal complications and socio-economic differences in cerebral palsy in Sweden – a national cohort study” in light of the constructive comments made by the four reviewers.

We have made the following comments to the remarks by the reviewers:

Reviewer: Nigel Paneth.

1. The terminology used in this article is adapted to the specific aim of this study. By excluding gross malformations identified at birth we are trying to take away the link between these malformations and the perinatal risk factors which would otherwise have biased our analysis. Text has been added to the methods section about this. Injury-related CP was excluded in response to the points made by Pharoah in his criticism of Spencer et al. The rate of injuries may seem low, but if you consider that Sweden has the lowest injury rate in the world for children and the comparatively low age of the cohort we believe that we few of these cases were missed.

2. At a first glance it may seem like a good idea to use general hospital admission data to adjust the analysis for the variation of hospital admissions by SES. This variation, however, is specific for each disorder. The gradient is greatest for disorders that are usually treated in ambulatory care like respiratory tract disorders and non-existent for disorders that are always treated in hospital care such as new cases of diabetes. To estimate this specific gradient for CP would demand an independent data source which could be compared with hospital admissions. Needless to say, such a study would be of great value for the interpretation of our results. In this revised version of the article we have rewritten the conclusion and the methodological limitations so that the uncertainty of our results are more clearly identified and the need for further studies is spelled out.

3. Our modelling is quite complex. In this revised manuscript we have taken out the undadjusted model to simplify the interpretation somewhat. Models 3 and 4
(former 4 and 5) should be interpreted as parallel models to Model 2 rather than as subsequent models. The aim of these three models is to analyse three sets of perinatal variables separately so that the contribution of each one can be identified. In conclusion these models suggest that gestational age is the most important perinatal risk factor for CP of these three variables. This is also spelled out in the discussion.

Minor
4. We have added the OR:s from the moderately low SES to the abstract to make the connection with the table easier to follow.
5. We have changed the labels of SES in the Tables.
6. We have preferred not to make a big case of the variation between sexes and metropolitan/rural since we agree with you that admittance rate could be important here.

Reviewer: Helen Dolk
1. We agree with you that the use of hospital admission data to identify cases of CP needs to be more thoroughly discussed. In this revised version of the article we have rewritten the conclusion and the methodological limitations so that the uncertainty of our results are more clearly identified and the need for further studies is spelled out.
2. The number of categories for gestational age is primarily a question of statistical power. Adding another category for the extremely preterm here would create a large number of empty cells in the regression analysis. I can assure you that the analysis of children born full term is very similar to that of Model 3 in Table 4.
3. The observation that rural children have higher rates of cp in this study has important implications for Swedish neonatal care as you may understand. We feel hesitant to draw any conclusions at all about this in this study where the use of hospital admissions to create our outcome could be an important bias on this point.
4. We have added the two articles to the introduction and the reference list.

Reviewer: Susan Michelsen.
1. We have added the important remark about the quality of the diagnosis to the methodological limitations section.
2. We have made all the minor revisions suggested except adding the exact definition of the SES categories which would take up a lot of space because of its complex nature.

Reviewer: Nicholas Spencer
1. We added cases from one year onwards since many children are admitted to hospitals for investigations of CP between 12 and 24 months in Sweden. Starting
at 2 years, which is usually recommended, would have decreased the number of children with a CP diagnosis considerably. In this study the accuracy of the diagnosis is unknown, as discussed in the limitations section in this revised article, and this would only marginally be improved by starting to identify cases at 2 years of age.

We look forward to your review.

This manuscript has neither been published in any other journal nor has it been submitted elsewhere. We have not been able to identify any conflict of interest potentially influencing the results or the interpretation of the findings.

We look forward to your review.

Yours sincerely,

Anders Hjern, Adjunct Professor
Centre of Epidemiology
Swedish National Board of Health and Welfare
106 30 STOCKHOLM
SWEDEN
E-mail: anders.hjern@socialstyrelsen.se
Phone: 46-8-55 55 31 69
Fax: 46-8-55 55 33 27