Reviewer’s report

Title: Risk of Cardio-Respiratory Dysfunction in Preterm Infants Placed in Car Seats: A Cross-Sectional Study

Version: 3 Date: 26 March 2005

Reviewer: alistair gunn

Reviewer’s report:

General
The authors have further improved the paper. However, the paper and in particular the new text has not been adequately proofread, and numerous minor corrections still need to be made. Table 2 appears to have data errors.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

There is something wrong with the numbers in Table 2. The mean percentages in each of the three binary comparisons (â€œpre-existing conditionsâ€™, gestational age and pre-discharge weight) should be identical, and also identical to the percentages in the equivalent cell in table 1. e.g 25 out of the total population of 42 infants had periodic breathing when in the car seat =59.5%. However table 2 shows that 75% of the 16 children <28 week and 61% of the 26 children >=28 weeks had periodic breathing in the car seat. Obviously this is in error. There are similar problems elsewhere in the table. I suggest that the authors should present all the data as n (%). This will make this table transparent. Note that there are other issues in the tables, listed in the next section.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

There are numerous minor errors that need to be corrected. Please note: This is a list of representative suggestions, not a complete listing of redactory errors; detailed, repeated proofread is required.

General:
The authors should refer to cardiorespiratory symptoms, not dysfunction.
The terminology of the stages of testing should be made uniform. In particular as discussed below, the authors should not refer to â€œpre-existingâ€™ symptoms when they mean symptoms in the control, supine period.

Introduction Para 2. This para is very difficult to understand. I believe the authors are trying to say something similar to:

â€œDespite this improving knowledge many questions regarding the safe transport of preterm infants remain to be resolved. There is wide inter-hospital variation in the duration of testing in a car seat and in recommendations for infants who fail the test. The risk factors that contribute to the development and severity of cardiorespiratory symptoms in preterm neonates during car seat testing are still poorly defined. Only pre-existing apnea of prematurity is clearly recognised, 5 and few other risk factors have been systematically studied. â€œ
Introduction Para 3, final sentence; missing “and”

Materials and Methods, para 1, 2nd sentence. Power to detect what? The assumptions underlying this calculation must be given. The number of infants excluded should be given.

I believe the authors are missing the point about “convenience” samples. The issue is not power, but the potential for selection bias. The authors should present evidence that the sample corresponds with their population.

The abbreviation O2 Sat should be spelled out in full in the text.

Page 4, 2nd para, last sentence, doesn’t make sense. What severity?. I believe the authors mean something like:

“Severe cardio-respiratory symptoms were defined as a fall oxygen saturation to below 80% and a fall in heart rate to less than 70 beats per minutes respectively.”

Page 4, data analysis. A comparison cannot be analysed. The threshold P value statement would fit better at the end of this section. The description of the conditional regression analysis is unclear. I think that the authors mean something like:

“A conditional regression analysis was performed to evaluate the impact of gestational age, weight at discharge and the presence of cardio-respiratory symptoms in the supine position on the infants risk of cardio-respiratory symptoms during placement in the car seat.”

Results.
First line: delete “the”
The brackets around “before placement in the car seat” are unneeded.

Same page, 2nd to last line. Should be “and occurred more than 3 times in 11 (26%) infants”.

Following page (page 6), top, this line is hard to understand. Do the authors mean:

“There was a significant association between periodic breathing and falls in O2 saturation to less than 80% (p=0.02, Figure 1).”

page 6, first full para, the odds ratio and 95% confidence interval should be given together. Are the authors presenting a univariate analysis followed by the full adjustment in the regression model? This is unclear. If so both results should be given.

*** The authors need to be cautious with interpretation of the effects of inter related variables. In this case, if birth weight <2000 is not significant only when included with the other variables, this probably does not actually mean that infants <2000g are not at risk, but rather that their risk is associated with a high rate of symptoms even when supine****

Table 1:
Brad_y_cardia
O2: subscript the “2” not superscript
Some data cells contain a dash instead of a number. If this represents zero should be used. If there missing data this should be stated in a footer? The missing p values are presumably N.S. or p=0.99

Table 2. the heading “pre-existing conditions” is not ideal. This could be read to mean
problems present before this test, whereas the authors actually mean cardio-respiratory symptoms in the supine control period. I suggest that ‘pre-existing’ should be replaced with ‘control symptoms’ or ‘symptoms while supine’. All data should be represented at n (%) , and dashes should not be used. The precise comparisons made for the significant differences should be stated more clearly.

Figure 1 suggests that a fall in O2 saturation to <80% is a more effective discriminator. Should this parameter be used in this table as well?

Figure 1.
The authors should consider presenting these data as a table as well.
If they prefer to keep this figure, then it _must_ not use the 3d effect, which is well known to obscure data.

Discussion.
The discussion is even longer than before, and yet, still difficult to follow. The new text is part of the problem. I venture to suggest that the overall readability would be improved by streamlining the authors' arguments, and reducing the length by about 30%.

Page 7, line one: ‘ca’ should be ‘car’:
The term ‘pre-existing’ should not be used as suggested above
Concordance should be ‘in accord’ or ‘consistent with’.

Page 7, para 2, ‘during car seat testing’ rather than ‘during the car seat testing’
Same para. The association between periodic breathing and desaturation does not ‘rise the question’. The authors presumably just mean something like:

‘Although monitoring for periodic breathing was not included in the AAP recommendations for during pre-discharge car seat testing of preterm infants, our results strongly suggest that it may be of considerable value in identifying infants at high risk of oxygen desaturation during transport’.

Next para (bottom of page 7). The discussion of the limitations of the study in this and subsequent paras is well meant but is too long and has many distracting redactory errors. The authors should simply list the potential limitations, and the implications of each if any.
The definition of apnea should be in the methods, not in the discussion.
The statement about standardized classification that follows should be removed.

Subsequent para (first full para, Page 8). This para is much too long. The first half could be removed with no loss of information. If the authors have information that it takes a mean of ~45 min for their patients to drive home, they should simply say so. The same applies to the references to the duration of monitoring in previous studies.

Page 8, discussion of sleep state. The key statement regarding the risk of leaving infants asleep in a car seat is difficult to understand. Do the authors mean something like?:

‘These observations suggest that if preterm babies are left asleep in a car seat they are likely to be at even greater risk of cardio-respiratory symptoms and consequent episodes of oxygen desaturation. This is of particular concern since there is evidence that a high percentage of episodes of apnea and bradycardia are not detected clinically’.
Page 9, 2nd full para. This para, summarizing the conclusions, would be better placed near the beginning of the discussion, where it would help orient the reader and guide subsequent order of discussion.

The final conclusion is to the point and well written, however, I still wonder if the authors should also note the option of supine transport in a so called "car bed"?

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Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No

Declaration of competing interests:

None.