
Dr. Scherjon comments:
The most obvious difference in the analysis presented in the letter by Kempley et al and our study is that our analysis is based on 10 longitudinal measurements, instead of two pairs of measurements. We are therefore able to analyse the contribution of several variables to a repeated measurement model.

We used values of MAP and PCO2 (as did Kempley), but also analysed both variables as continuous, rather than changing over time. Thus the effect of MAP and PCO2 both on the patient specific level of CBVF and the within patient time course on CBVF could be estimated.

Secondly, our model included gestational age as a possible confounding variable. The latter seems to be essential in the interpretation of the results. Growth retardation (IUGR) was defined by a raised antenatal umbilical/cerebral pulsatility index ratio (U'C') 9 an index indicating fetal haemodynamic redistribution and very strictly related to neonatal birthweight.1 For this reply a more classic definition of SGA, using the fetal growth ratio (FGR), was used. The lower limit for appropriate fetal growth was 80% corresponding to the 4-3 birthweight centile.2

If gestational age is not included in the model (table 1) MAP has a significant contribution to CBVF if gestational age is included in the model its contribution disappears.

Interestingly, the interaction component between IUGR grouping and MAPdependent appeared to be significant only for the fetal discrimination. This suggests that there might be a different effect of MAPdependent on CBVF for IUGR compared with non-IUGR infants (IUGR defined by FGR and not by the U'C').

We therefore repeated the analysis for the two growth retardation definitions. For the normal FGR infants and for the normal U'C' ratio group we found a significant contribution of the time course of blood pressure changes on CBVF changes, but the absolute levels of MAP seem to have no contribution to the model (table 2).

We agree with Kempley et al that there seems to be a different setting for the contribution of CBVF between appropriately grown and SGA neonates, although we did not find the effect when FGR alone is used as the definition of SGA. We also could not show the effect for the absolute MAP levels on CBVF. It might be, as was suggested in the original article, that SGA is associated with a more stable CBVF, and therefore this would explain the lower incidence of severe intracranial pathology found in the growth retarded group.

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Neonatal abstinence syndrome
Editor,—Our clinical experience of neonatal abstinence syndrome (NAS) differs from that in Liverpool described by Shaw and McIvor, who focused on methadone.1 During the period 1989-94 inclusive, we identified 39 babies at risk of NAS. Of these, two (5%) had mothers with a history of drug use who denied current use, one (3%) mother took codeine, five (13%) used heroin, 22 (56%) used methadone and nine (23%) did not use opiates at all (largely alcohol and amphetamines). Of the mothers using methadone, five (23%) took methadone alone, eight (36%) took heroin in early pregnancy followed by methadone as part of a detoxification regimen, and nine (41%) were polypharmacy users.

The median time from maternal withdrawal for the methadone group was 30 hours (range 0-7 days) and for the heroin group 1-5 days (range 1-2 days). Median duration of medical treatment for the methadone group was 23 days (range 0-80 days) and for the heroin group, 4-5 days (range 0-8 days). The median length of stay in hospital for the methadone group was 22-5 days (range 6-107 days) — one baby was successfully withdrawn from morphine at home under close supervision — and six (27%) were chronic non-attenders. Of the heroin group, one baby was adopted and the rest stayed with their mothers. Two (40%) were followed up on more than one occasion, one attended outpatients only once, and two (40%) never attended. There was one death in a baby exposed to methadone and heroin who died at the age of 6 weeks from meningococcal septicemia.

Even though the Liverpool figures suggest an earlier and lower level of withdrawal from methadone than has previously been suggested2 we cannot be certain that the mothers were not taking heroin in addition to methadone. Our figures suggest an earlier onset and a more protracted course of NAS with methadone. We would caution paediatricians to be aware of the pattern of local drug use before altering observation policy for NAS on the basis of one paper.

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Pros and cons of antiseptic cord care
Editor,—A recent letter points out that antiseptic agents may delay separation of the umbilical cord.1 However, certain agents can hasten cord separation. This has public health implications. In many non-industrial settings the period from birth to cord separation is an important rite of passage during which varied social and dietary taboos are observed.

Among the pastoralist peoples of Southern Sudan, where neonatal tetanus is common and seems to be related to traditional cord care techniques,2 cord care kits were promoted in the 1980s. When I interviewed mothers of babies with tetanus neonatorum (n=35, unpublished data) none had used cord care kits. Seventy five per cent had applied earth to the cord which had been collected from a number of important sites. When asked why this was done most replied that it helped to expedite the process of cord separation. In traditional village culture in this region mother and baby are segregated in the family hut and intensive dietary restrictions are enforced until the cord separates, when mother and infant become the focus of a collective feast. Women prefer

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Table 1 Variables significantly contributing to the model: repeated measurements model

<table>
<thead>
<tr>
<th>Model</th>
<th>U'C' ratio</th>
<th>U'C' ratio</th>
<th>FGR ratio</th>
<th>FGR ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GA</td>
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<td>Not included</td>
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<tr>
<td>MAPdependent</td>
<td>0.00</td>
<td>0.18</td>
<td>0.14</td>
<td>0.01</td>
</tr>
</tbody>
</table>

GA: gestational age; IUGR: fetal growth retardation as defined by U'C' ratio or FGR; MAP: mean arterial blood pressure; PCO2: transcranial PCO2; *interaction component between MAPdependent and IUGR.

Table 2 Variables significantly contributing to the model: repeated measurements model

<table>
<thead>
<tr>
<th>Model</th>
<th>U'C' ratio</th>
<th>U'C' ratio</th>
<th>FGR ratio</th>
<th>FGR ratio</th>
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<td>MAPdependent</td>
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<td>0.18</td>
<td>0.14</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Of the 63 appointments, 39 (61%) were attended. Of these, 18 (36%) took heroin, 22 (56%) used methadone and nine (23%) did not use opiates at all (largely alcohol and amphetamines). Of the mothers using methadone, five (23%) took methadone alone, eight (36%) took heroin in early pregnancy followed by methadone as part of a detoxification regimen, and nine (41%) were polypharmacy users.

The median time from maternal withdrawal for the methadone group was 30 hours (range 0-7 days) and for the heroin group 1-5 days (range 1-2 days). Median duration of medical treatment for the methadone group was 23 days (range 0-80 days) and for the heroin group, 4-5 days (range 0-8 days). The median length of stay in hospital for the methadone group was 22-5 days (range 6-107 days) — one baby was successfully withdrawn from morphine at home under close supervision — and six (27%) were chronic non-attenders. Of the heroin group, one baby was adopted and the rest stayed with their mothers. Two (40%) were followed up on more than one occasion, one attended outpatients only once, and two (40%) never attended. There was one death in a baby exposed to methadone and heroin who died at the age of 6 weeks from meningococcal septicemia.

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