Aspiration pneumonia in association with oral vitamin K

Most infants born in the British Isles now receive vitamin K prophylaxis, and the trend towards oral administration continues. With the awareness that vitamin K is well absorbed from the gut and following publication of the report linking intramuscular vitamin K and childhood cancer, oral vitamin K prophylaxis has become more widespread. However, because of lack of uniform national policy, the practice of vitamin K administration varies from region to region. Cases of aspiration or anaphylaxis following oral vitamin K administration in neonates have not been previously reported.

We report three cases of aspiration associated with oral vitamin K, Orakay, the preparation uniformly used in Northeast England. Acute respiratory distress developed in previously well, breast fed neonates following administration of Orakay at home. All required hospital admission, and two of them had radiological evidence of aspiration.

Case 1: A 14 day old term boy was well until a second dose of Orakay by his father. He immediately developed a cough, tachypnoeic, and refused feeds. On examination, he had features of respiratory distress. A septic screen was normal. A chest radiograph was normal. After discharge, he was given a fourth dose of Orakay under hospital supervision and remained well.

Case 2: A 14 day old girl was well until the community midwife gave a second dose of Orakay by her father. She started to cough, became pale, unsettled, and tachypnoeic, and refused feeds. On examination, she had features of respiratory distress. A septic screen was negative. A chest radiograph was normal. After discharge, she was given a fourth dose of Orakay under hospital supervision and remained well.

Case 3: A 28 day old term girl was thriving and had tolerated two doses of Orakay well. When her father administered a third dose, she started to cough, became pale, unsettled, and following oral vitamin K administration in the community. Cases of aspiration or anaphylaxis have not been previously reported.

References


Hypothesis waiting for proof: unswapping neonates for transfer

During transfer from the delivery suite to the neonatal intensive care unit (NICU), infants are traditionally wrapped in pre-warmed towels. Whether this is optimal remains unknown. We compared the effects on core temperature of wrapping or not wrapping neonates during their transfer from the delivery suite to the NICU.

After resuscitation, infants in both groups were transferred to a Vickers 77-transport incubator and left wrapped or unwrapped. Rectal temperature was recorded using a mercury thermometer before leaving the delivery suite and again, immediately after transfer into a NICU incubator. The study was granted ethical approval.

Our findings are summarised in the table. There were no significant demographic differences between the two groups. While the mean transfer time was longer in the unwrapped group, the mean temperature change during transit was lower although neither difference reached statistical significance. No hypothermia (rectal temperature <36°C) occurred in either group.

Wrapping infants in towels prevents convective heat gain. Additionally, leaving infants unwrapped allows essential clinical observation. Despite the limitations of this small study, our findings challenge the practice of wrapping infants and warrant further examination in larger clinical studies.

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Diuretics in CLD

This symposium on chronic lung disease of prematurity (CLD) by Kotecha et al covered important aspects and controversies in the management of CLD. We accept the authors’ inability to cover all aspects of management. We feel that some space could have been devoted to diuretics in management of CLD. Nearly all patients with CLD of some stage of their disease will receive diuretics and most of them will be on them for a long time. We came across only one systematic review by Brion et al in the Cochrane database. Conclusion of the authors was that there was no beneficial effect of using distal tubular diuretics for more than 4 weeks after initial stage. There was also no benefit in adding potassium sparing diuretics or newer diuretics like metalozone. Inspite of very little evidence base for diuretics in CLD, one finds nearly all CLD patients on a diuretic cocktail. In addition to their effect on electrolytes, they affect Ca/Po4 metabolism. This may exacerbate osteopenia of prematurity and may have adverse effect on lung compliance. There is need for more discussion or clear guidelines on this issue.

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References


Table 1: Demographics of the two study groups and temperature difference

<table>
<thead>
<tr>
<th></th>
<th>Wrapped</th>
<th>Unwrapped</th>
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<tbody>
<tr>
<td>Number</td>
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<td>10</td>
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<tr>
<td>Male/female</td>
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</tr>
<tr>
<td>Mean weight (kg)</td>
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<td>1.595</td>
</tr>
<tr>
<td>Mean gestation (days)</td>
<td>32/40</td>
<td>32/40</td>
</tr>
<tr>
<td>Temperature difference (°C)</td>
<td>−0.34</td>
<td>−0.21</td>
</tr>
</tbody>
</table>

Table 1: Demographics of the two study groups and temperature difference
Positioning long lines: response to Reece et al

Percutaneously inserted central venous lines are widely used in neonatal intensive care to administer parenteral nutrition and medication. It is important to ascertain the position of the line tip before use as incorrectly positioned long lines can lead to life-threatening complications like cardiac tamponade and pulmonary oedema.

Reece et al suggested that it is prudent to use a routine contrast radiograph to localise the line tip in newborns. We would like to comment on their suggestion and report a relevant study undertaken by us on our neonatal unit.

Intravenous water soluble contrast is not commonly used in neonates and very little is known about its potential side effects in this group. Only recently has the importance of plain radiographs in identifying anomalies or complications of central lines been recognised, with a wider spectrum of pathologies being identified.

In our study we carried out on our neonatal unit, we found that 76% of lines showed some degree of mispositioning, and in particular that 55% were too low, 22% too high, and 19% were positioned in the heart. A further finding was the incidence of complications due to line placements, no complications due to line placements were noted in this study. In conclusion, we believe that routine radiographs should be performed for all lines placed in the neonatal intensive care unit. Over a 10 month period all 27 babies who had long lines inserted were included. In all cases an intravenous contrast and the radiographer injecting the contrast, ultrasonographic examination of the line tip before use as incor-

References


Authors’ reply

We thank Professor DelagiDramatic for his comments on our study. DelagiDramatic et al hypothesised that the combination of the prone posture and the 45 degree head up tilt position could facilitate diaphragmatic activity. We however, propose that the improvement in oxygenation seen in the head up tilt position was more likely to be due to a change in lung volume. In the head up tilt position, the weight of the abdominal contents on the diaphragm is reduced, tendency to increase functional residual capacity.

References


Effect of head up tilting on oxygenation

We criticise the paper by Dimitriou et al in which it was confirmed again that head up tilting to 45 degrees results in better oxygenation in stable preterm neonates. However compared with our study, in which the same effect was observed, there is a (probably) significant difference. Their infants were studied in the horizontal prone, in the horizontal supine and in the 45° head up tilt supine position whereas in our study all infants were studied in the prone position including the 45° head up tilt. We have then hypothesised that the combination of the prone position and the 45° head up tilt could facilitate diaphragmatic activity.

We do not think that this hypothesis can be totally dismissed by the results of Dimitriou et al as suggested by the authors, since their infants were studied in different postures that is, supine in their study and prone in our study.

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sodium depletion, and hyponatraemia, ignored; for example, renal salt wasting, homoeostasis in premature infants has been revealing some major features of sodium.

In particular, the work of our group in the hypothesis that hyponatraemia in premature infants is due to salt depletion rather than water retention. The reason these papers were not cited in the present paper is that they are not relevant to it. The paper is not a specific subject co-authored by myself. In this, inter alia, his study of the effect of salt supplementation on the renin-angiotensin-aldosterone system is quoted in support of the hypothesis that hyponatraemia in premature infants is due to salt depletion rather than water retention. The reason these papers were not cited in the present paper is that they are not relevant to it. The paper is not a historical or general review of hyponatraemia in the newborn but the results of a study specifically designed to examine neurodevelopmental outcome in two particular groups of infants previously studied by ourselves. His recent study of hyponatraemia and sensorineural deafness in premature infants had not been published when our paper was submitted to the Archives, although we would certainly have referred to it if it had been.

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References

Author’s reply
Methinks Professor Sulyok doth protest too much. His early, pioneering work on electrolyte balance in the newborn is well known, and extensively cited in an earlier review of the subject co-authored by myself. In this, inter alia, his study of the effect of salt supplementation on the renin-angiotensin-aldosterone system is quoted in support of the hypothesis that hyponatraemia in premature infants is due to salt depletion rather than water retention. The reason these papers were not cited in the present paper is that they are not relevant to it. The paper is not a historical or general review of hyponatraemia in the newborn but the results of a study specifically designed to examine neurodevelopmental outcome in two particular groups of infants previously studied by ourselves. His recent study of hyponatraemia and sensorineural deafness in premature infants had not been published when our paper was submitted to the Archives, although we would certainly have referred to it if it had been.

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