Amiodarone and breast feeding

An infant was born at 33+2 weeks gestation by caesarean section after an in utero diagnosis of fetal ascites and tachycardia. The mother had received treatment during pregnancy with flecainide, amiodarone, and propranolol. The amiodarone was prescribed initially at 200 mg three times a day and was reduced to twice a day after 11 days. The mother was keen to breast feed the baby. In previous reports of amiodarone and breast feeding, amiodarone treatment was for a maternal indication and hence continued post partum. In this case, the amiodarone treatment stopped at delivery. However, because of the long terminal half life of amiodarone (about 50 days), it could take several months for the level to fall. As one of the adverse effects of amiodarone is thyroid toxicity, the baby’s thyroid function was assessed and found to be normal. A decision was made to allow the mother to breast feed, and the baby was closely monitored.

Breast milk was sent for analysis to determine the amiodarone level on days 5, 11, 18, and 25. It had increased on day 11 (2.1 mg/l) compared with day 5 (0.6 mg/l). This may be due to changes in composition of the milk. We do not know at what time of day the milk was expressed or whether the sample was taken at the beginning or the end of the feed. The fat content of the milk was likely to be greater after 11 days than after 5 days, which may affect the distribution of amiodarone. McKenna et al described changes in amiodarone concentration in breast milk throughout the day. By 25 days, amiodarone was undetectable. Throughout this period the baby remained well and thyroid function was normal.

Although we would not recommend that breast feeding is necessarily safe for all babies exposed to amiodarone, this case illustrates that, in some circumstances, with close monitoring, breast feeding can be initiated.

C M Hall
Pharmacy Department, Royal Victoria Infirmary, Queen Victoria Road, Newcastle upon Tyne NE1 4LP, UK; catherine.hall@rv.in.north.nhs.uk

K P B McCormick
Neonatal Unit, Royal Victoria Infirmary

Refere...
Swaddling and heat loss

The letter of Hawkes et al. raises the important issues of swaddling and temperature on admission to the neonatal unit. Besch et al. carried out a limited comparison of different swaddling materials and found a transparent plastic bag together with radiant heat to be swaddling materials and found a transparent bag to be effective than towels because of reduction in evaporative, convective, and radiant heat loss, so an additional heat source is "bagged" or not, time to admission to the unit, birthing, gestation, mode of delivery, month of delivery, and maternal temperature. Significant coefficients of variation existed between admission temperature and:

- being bagged +0.35°C (0.09 to 0.62) (coefficient, 95% CI);
- time to admission −0.02°C (−0.01 to −0.03) per minute;
- birth weight +0.07°C (0.02 to 0.1) per 100 g;
- gestation +0.0007°C (0.0002 to 0.001) °C per week.

Thus "bagging" increased admission temperatures by 0.35°C, which is rather less than the rise of 1.9°C in babies < 28 weeks gestation reported in a previous study. Table 1 shows that, in the comparable groups, this rise of 0.35°C resulted in a significant reduction in incidence of hypothermia (< 35°C) in "bagged" babies. However, significantly more of them (12%) were hyperthermic (> 37°C), a phenomenon previously reported but not discussed. The risks of hypothermia are less well defined than those of hypothermia, but it may increase the risk of neurological damage. The technique of wrapping babies in polythene bags would seem to benefit very preterm babies, although we may yet have to learn to use it appropriately.

T Newton, M Watkinson
Neonatal Unit, Birmingham Heartlands Hospital, Birmingham, UK; michael.watkinson@heartsl.nhs.uk

Preventing hypothermia at birth in preterm babies: at a cost of overheating some?

In the Epicure study, the odds ratio of death before discharge for babies whose temperature on admission to the neonatal unit was > 35°C was 0.58 (95% confidence interval (CI) 0.39 to 0.85) compared with those with lower temperatures. In 2001, we therefore introduced a policy of wrapping neonates < 30 weeks gestation in polythene bags at birth without first drying them. Temperatures on admission to the neonatal unit after the introduction of this policy were compared with those of historical controls of < 30 weeks gestation admitted unwrapped between 1996 and 2000. The admission temperatures were analysed by stepwise multiple regression against being "bagged" or not, time to admission to the unit, birth weight, gestation, mode of delivery, month of delivery, and maternal temperature. Significant differences of variation existed between admission temperature and:

- being bagged +0.35°C (0.09 to 0.62) (coefficient, 95% CI);
- time to admission −0.02°C (−0.01 to −0.03) per minute;
- birth weight +0.07°C (0.02 to 0.1) per 100 g;
- gestation +0.0007°C (0.0002 to 0.001) ºC per week.

Thus “bagging” increased admission temperatures by 0.35°C, which is rather less than the rise of 1.9°C in babies < 28 weeks gestation reported in a previous study. Table 1 shows that, in the comparable groups, this rise of 0.35°C resulted in a significant reduction in incidence of hypothermia (< 35°C) in “bagged” babies. However, significantly more of them (12%) were hypothermic (> 37°C), a phenomenon previously reported but not discussed. The risks of hypothermia are less well defined than those of hypothermia, but it may increase the risk of neurological damage. The technique of wrapping babies in polythene bags would seem to benefit very preterm babies, although we may yet have to learn to use it appropriately.

T Newton, M Watkinson
Neonatal Unit, Birmingham Heartlands Hospital, Birmingham, UK; michael.watkinson@heartsl.nhs.uk

References

Technique for insertion of percutaneous central venous catheters in the newborn period

The use of percutaneous central venous catheters is of proven value for the provision of parenteral nutrition and intravenous drug treatment in neonates. They have become an integral part of the management of very low birthweight infants in most intensive care units.

At the Royal Children’s Hospital in Melbourne we used a silastic catheter, which has an external diameter of 0.6 mm and comes in a variety of different lengths (Epicutaneous catheter manufactured by Vygon; lengths 15, 30, and 50 cm; ref nos 2184.015, 2184.00, and 2184.005; cost AU$59.10). It is packaged with a metal 19 GA butterfly needle for use in insertion of the line.

This technique has some drawbacks.

(1) The 19 GA needle is difficult to put directly into neonatal veins because of its large size.
(2) It can be difficult to appreciate “flash back” of blood into the metal needle.
(3) It is not possible to “flush” the needle to ensure correct positioning of the line as well as patency of the vessel.
(4) It is not feasible to place femoral venous lines using this method.

We therefore use a method whereby the vein, using the Seldinger technique, is ultimately cannulated with a 20 GA catheter through which the silastic line can be inserted.

(1) The procedure should be carried out under optimal conditions using an aseptic technique. If the infant is already ventilated, we advocate the use of a muscle relaxant as well as adequate sedation. This is especially advisable for insertion of femoral venous lines.
(2) The vein is initially cannulated with a 24 GA (external diameter 0.7 mm) cannula. The sites most often used are the great saphenous vein at the ankle or knee joint, the femoral vein, the basilic or cephalic veins in the antecubital fossa, or, occasionally, the superficial temporal vein. A transilluminator or “cold light” inserted into the finger of a sterile glove can be of use in locating deep veins as well as protecting the sterile field.
(3) A guidewire is then inserted through the cannula into the vein. We use a “duoflex spring wire guide”: diameter 0.45 mm, length 25 cm (duoflex spring wire guide manufactured by Arrow; product no AW-04018; cost

### Table 1: Incidence of hypothermia and hyperthermia in control babies and babies wrapped in polythene bags (study group)

<table>
<thead>
<tr>
<th>Control group</th>
<th>Study group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>230</td>
</tr>
<tr>
<td>Gestation (weeks)</td>
<td>27.5 (23–29)</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>1020 (400–1900)</td>
</tr>
<tr>
<td>Number &lt; 35.5°C</td>
<td>96 (42)</td>
</tr>
<tr>
<td>Number &lt; 37°C</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Values are either median (range) or number (%). CI, Confidence interval.</td>
<td></td>
</tr>
</tbody>
</table>
AU$13.00. Invasive intravenous catheter manufactured by Becton Dickinson catheter; GA 24, 22, and 20; cost AU$2.00). This has the advantage of having a soft tip at both ends of the wire and being a snug fit to the smallest catheter. Care must be taken not to advance the wire if any resistance is met.

(4) A small nick is made in the skin at the site of wire to facilitate the insertion of the larger intravenous cannula.

(5) A 20 GA (external diameter 1.1 mm) cannula is then threaded over the wire into the vein (a 22 GA (external diameter 0.8 mm) can be used to dilate the vein before the larger cannula is inserted). This can be flushed with saline to ensure patency of the vein.

(6) The silastic catheter can then be fed up the vein through the 20 GA cannula with a pair of toothless forceps. Occasionally the silastic line coils up in the hub of the cannula. This can be overcome by cutting the cannula flush to the hub and reinserting the silastic line.

(7) The silastic catheter is placed to the required length and the other cannula is withdrawn.

(8) The silastic catheter should be placed outside the cardiac outline in accordance with new guidelines.** The position is always confirmed radiologically either by plain radiograph or, if necessary, by injection of radiopaque dye. We have seen neonates with pericardial tamponade associated with malpositioned catheters, which has been well documented in the literature."**

We have found this method to be extremely reliable in the insertion of percutaneous venous catheters. The use of the guidewire incurs additional costs (see above). In our experience these are documented in the literature.

**Comparison between the outcomes for grade 3–4 intraventricular haemorrhage (IVH) in the three studies (Table 1)**

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Comparison between the outcomes for grade 3–4 intraventricular haemorrhage (IVH) in the three studies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Murphy et al.</strong></td>
<td><strong>MMC 1980s</strong></td>
</tr>
<tr>
<td>Grade 3–4 IVH (% of all &lt;1500 g)</td>
<td>79% (7)</td>
</tr>
<tr>
<td>Death &lt;14 days</td>
<td>18/79 (23%)</td>
</tr>
<tr>
<td>PVD requiring treatment</td>
<td>34/61 (56%)</td>
</tr>
<tr>
<td>VP shunt/death rate (PVD treatment)</td>
<td>18/8 (26/34±7%)</td>
</tr>
<tr>
<td>*Rate for all infants &lt;35 weeks.</td>
<td></td>
</tr>
<tr>
<td>**Rate for all deaths &lt;30 days.</td>
<td></td>
</tr>
<tr>
<td>MMC, Maine Medical Center; PVD, progressive ventricular dilatation; VP, ventriculoperitoneal.</td>
<td></td>
</tr>
</tbody>
</table>

References


4. Tubridy G, Bayley, Bristol School of Anaesthesia, Bristol, UK

Correspondence to: Dr Bayley, Department of Anaesthetics, Bristol Royal Infirmary, Marlborough Street, Bristol, UK, kateandguy@hotmail.com

References


Do we need to assess the thyroid function in the infants of mothers with Hashimoto's thyroiditis?

We read with interest the recent comprehensive review of neonatal thyroid disorders, which gave evidence-based answers to many important questions. The author recommended that all babies born to mothers with Hashimoto's thyroiditis should be reviewed at 10 days to 2 weeks and a thyroid function test taken because infants may develop transient hypothyroidism or, very rarely, hyperthyroidism.1

As paediatricians, in a hospital with a paediatric endocrine caseload similar to some tertiary centres and a subregional neonatal intensive care unit with local deliveries of 6000 per annum, we think that the potential benefits of this practice are difficult to justify. We do understand that such practice will help in identifying babies who may develop transient congenital hypothyroidism caused by maternal thyroid receptor blocking antibodies. However, the incidence of this form of hypothyroidism has been estimated to be 1 in 180 000 normal infants (~2% of congenital hypothyroidism) and the majority of them will have raised thyroid stimulation hormone levels that can be detected by the current neonatal screening.1 Based on a simple calculation, in a unit of our size only one baby will be detected every 30 years. We feel that there would be major disadvantages if we are to adopt the author’s recommendation. Firstly, an extra hospital visit for babies and parents; secondly the need to bleed many healthy infants; and finally the potential for confusion and unnecessary anxiety. Until objective evidence emerges about the significance of subtle thyroid dysfunction in early life we feel that the current screening programme should not be extended.

A M Habeb
Paediatric Department, Hull Royal Infirmary; abdul.habeb@hey.nhs.uk

M Zubier, P Pairaudeau, V Mathew
Paediatric Department, Hull Royal Infirmary

References

CORRECTIONS

In the CD Review (Arch Dis Child Fetal Neonatal Ed 2003;88:F164) reviewed by C Wren, please note that the affiliation of the authors is published incorrectly. This should have read Royal Prince Alfred Hospital, Sydney. Also, the web address in the final paragraph is incomplete. The correct address is: http://www.cs.nsw.gov.au/rpa/neonatal/default.htm. The errors are much regretted.

The authors would like to acknowledge and apologise for an error in our article Socioeconomic status and preterm birth: New Zealand trends, 1980 to 1999. ED Craig, JMD Thompson, EA Mitchell (Arch Dis Child Fetal Neonatal Ed 2002;86:F142-6).

Paragraph four in the Results section should read “Figure 2 summarises changes in preterm birth rates by Deprivation Index decile between 1980 and 1999. During this period rates rose from 5.2% to 5.9% among those living in the most deprived areas (a 13.5% increase), from 4.0 to 5.5% amongst those living in average areas (a 37.5% increase) and from 3.1% to 5.4% amongst those living in the least deprived areas (a 74.2% increase).”

The correct address in the final paragraph is incomplete. This should have read Royal Prince Alfred Hospital, Sydney. Also, the web address given in the final paragraph is incorrect. This should have read http://www.cs.nsw.gov.au/rpa/neonatal/default.htm.

The errors do not significantly change the reported trends in preterm birth or the interpretation of the findings previously published.

Table 2 Multivariate odds ratios for preterm birth by gestational age category and deprivation index decile; New Zealand singleton live births 1980, 1990, and 1999

<table>
<thead>
<tr>
<th>Year</th>
<th>NZDep Index Decile</th>
<th>Gestational Age Category</th>
<th>All Preterm (n=51711) OR*</th>
<th>20-27 weeks (n=2697) OR**</th>
<th>28-33 weeks (n=12703) OR*</th>
<th>34-36 weeks (n=36311) OR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>1</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>1980</td>
<td>5</td>
<td>1.15</td>
<td>1.08</td>
<td>1.16</td>
<td>1.15</td>
<td>1.15</td>
</tr>
<tr>
<td>1980</td>
<td>10</td>
<td>1.36</td>
<td>1.18</td>
<td>1.39</td>
<td>1.36</td>
<td>1.36</td>
</tr>
<tr>
<td>1990</td>
<td>1</td>
<td>1.30</td>
<td>1.31</td>
<td>1.21</td>
<td>1.33</td>
<td>1.33</td>
</tr>
<tr>
<td>1990</td>
<td>5</td>
<td>1.44</td>
<td>1.45</td>
<td>1.34</td>
<td>1.47</td>
<td>1.47</td>
</tr>
<tr>
<td>1990</td>
<td>10</td>
<td>1.63</td>
<td>1.66</td>
<td>1.52</td>
<td>1.67</td>
<td>1.67</td>
</tr>
<tr>
<td>1999</td>
<td>1</td>
<td>1.64</td>
<td>1.67</td>
<td>1.44</td>
<td>1.72</td>
<td>1.72</td>
</tr>
<tr>
<td>1999</td>
<td>5</td>
<td>1.76</td>
<td>1.91</td>
<td>1.53</td>
<td>1.84</td>
<td>1.84</td>
</tr>
<tr>
<td>1999</td>
<td>10</td>
<td>1.93</td>
<td>2.25</td>
<td>1.64</td>
<td>2.02</td>
<td>2.02</td>
</tr>
</tbody>
</table>

Multivariate analysis adjusted for gender, maternal age, parity, birth year, and birth year*decile, year*age, year*parity, decile*age, decile*parity.

*Odds ratios (OR) with reference category deprivation index decile 1, 1980.
**Odds ratios for the 20–27 week category did not reach statistical significance.

Table 3 The ‘social gradient in preterm birth’: risk of preterm birth amongst decile 10 women compared to decile 1 women (same year), New Zealand singleton live births 1980, 1990, and 1999

<table>
<thead>
<tr>
<th>Year</th>
<th>All Preterm (n=51711) OR*</th>
<th>20-27 weeks (n=2697) OR**</th>
<th>28-33 weeks (n=12703) OR*</th>
<th>34-36 weeks (n=36311) OR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>1.36</td>
<td>1.18</td>
<td>1.39</td>
<td>1.36</td>
</tr>
<tr>
<td>1990</td>
<td>1.26</td>
<td>1.27</td>
<td>1.25</td>
<td>1.26</td>
</tr>
<tr>
<td>1999</td>
<td>1.17</td>
<td>1.35</td>
<td>1.14</td>
<td>1.17</td>
</tr>
</tbody>
</table>

Multivariate analysis adjusted for gender, maternal age, parity, birth year, and birth year*decile, year*age, year*parity, decile*age, decile*parity.

*Odds ratios (OR) for preterm birth amongst decile 10 women compared to those in decile 1 for each particular year reflect the social gradient for that year.

**Odds ratios for the 20–27 week category did not reach statistical significance.