NHS FORTH VALLEY
Management of Neonatal Abstinence Syndrome

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Final Approval

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### Consultation and Change Record

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<tr>
<th><strong>Contributing Authors:</strong></th>
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<tr>
<td><strong>Consultation Process:</strong></td>
<td>All Neonatal medical and nursing staff</td>
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<td>Postnatal nursing staff</td>
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<tr>
<td><strong>Distribution:</strong></td>
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UNCONTROLLED WHEN PRINTED
Management of Neonatal Abstinence Syndrome

This guideline is applicable to all Medical, Nursing and Midwifery staff caring for babies in Forth Valley Royal Hospital. Staff should be aware of the appropriate drug monographs and other applicable guidelines, which include the Immunisation guideline and guidelines for the management of babies born to mothers with vertically transmissible viral infections (HIV, Hepatitis B and C).

Introduction to the NAS policy

Neonatal Abstinence Syndrome (NAS) is a constellation of symptoms occurring in a baby as a result of withdrawal from physically addictive substances taken by the mother. These substances include methadone, benzodiazepines, opiates, cocaine and amphetamines as well as caffeine, nicotine and some antidepressant agents. The majority of infants with NAS will be withdrawing from opiates or opioids ± benzodiazepines. Almost all drug misusing mothers smoke in pregnancy: it is not known how much nicotine withdrawal contributes to symptoms.

Delivery

Delivery of infant of a drug misusing mother is not in itself an indication for paediatric attendance. It is recommended that the use of Naxalone (Narcan) be avoided to prevent the abrupt onset of withdrawal, but this is based on very little evidence and each case should be individually assessed.

Post Natal Care

Infants at risk of NAS are nursed in the post natal ward with their mother unless any specific indication for admission to NNU is present. Mothers should perform all routine care, allowing the midwifery team to assess their parenting skills. NAS babies are very demanding and require a lot of comforting: it is important that the infant is nursed together with his/her mother whenever possible. Babies should stay for at least 72hrs before discharge home.

Breast Feeding

Breastfeeding is associated with a 50% reduction in the risk of developing NAS requiring treatment and is strongly encouraged. Morphine administered to mothers is excreted only in small amounts in breast milk and is considered safe for breast feeding mums. Very rarely maternal codeine (which is metabolised to morphine) can result in neonatal morphine toxicity, and so codeine is not generally recommended in breast feeding mums. Cocaine taken during breastfeeding can cause neonatal toxicity, although the benefits of breastfeeding must be weighed against the frequency and extent of cocaine use.
Diagnosing NAS

Signs and symptoms of NAS include excessive irritability, in-coordinate sucking, vomiting and diarrhoea and poor weight gain. Rarely, convulsions may occur. The diagnosis of severity of NAS (and the need for pharmaceutical treatment) is largely subjective, but the various scoring systems have been used in an attempt to standardise treatment. The scoring system will change to the modified Lipsitz tool.

The aim of treatment is to control symptoms to allow oral feeding, tolerable irritability and adequate weight gain. NAS is the likely diagnosis in an infant who demonstrates the signs and symptoms listed above and whose mother was known to have use addictive substances in pregnancy. Other common causes of extreme irritability can be generally excluded by careful history taking, clinical examination and measurement of blood sugar, calcium and magnesium.
Lipstiz Score Tool

<table>
<thead>
<tr>
<th>Signs</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
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<tbody>
<tr>
<td>Tremors (muscle activity of Limbs)</td>
<td>Normal</td>
<td>Minimally increased when hungry or disturbed</td>
<td>Moderate or marked increase when undisturbed: subside when fed or held snugly</td>
<td>Marked increase or continuous even when undisturbed, progressing to seizure-like movements</td>
</tr>
<tr>
<td>Irritability (excessive crying)</td>
<td>None</td>
<td>Slightly Increased</td>
<td>Moderate to severe when disturbed or hungry</td>
<td>Marked even when undisturbed</td>
</tr>
<tr>
<td>Reflexes</td>
<td>Normal</td>
<td>Increased</td>
<td>Markedly increased</td>
<td></td>
</tr>
<tr>
<td>Stools</td>
<td>Normal</td>
<td>Explosive, but normal frequency</td>
<td>Explosive, more than 8 per day</td>
<td></td>
</tr>
<tr>
<td>Muscle Tone</td>
<td>Normal</td>
<td>Increased</td>
<td>Rigidity</td>
<td></td>
</tr>
<tr>
<td>Skin Abrasions</td>
<td>No</td>
<td>Redness of knees and elbows</td>
<td>Breaking of skin</td>
<td></td>
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<tr>
<td>Respiratory Rate/Min</td>
<td>&lt;55</td>
<td>55-75</td>
<td>76-95</td>
<td></td>
</tr>
<tr>
<td>Repetitive Sneezing</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetitive Yawning</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>Vomiting</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
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<tr>
<td>Fever &gt; 37.2 degree</td>
<td>No</td>
<td>Yes</td>
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Management of NAS

Simple measures to control symptoms of NAS include swaddling, the use of dummies and prolonged nursing. The pharmaceutical treatment of choice is the substance from which the infant is withdrawing.

1. Exclude other diagnoses by careful history taking and clinical examination. Document maternal drug history as accurately as possible – this should be assessed in conjunction with the mother herself, with midwifery staff and CADS workers if appropriate.

2. Infants at risk of hypoglycaemia must have their blood sugar measured, and if the infant does not respond to treatment within 24 hours, or there is any atypical clinical features, plasma calcium, phosphate and magnesium should be measured. The threshold for measuring Plasma biochemistry should be low and it is important that results of any blood tests are reviewed promptly and documented in the notes.

Treatment should be started if the Lipstiz score ≥ 5 on two occasions 12 hours apart despite the efforts to console the infant by nursing/carrying. Treatment may also be required if the symptoms are sufficient to cause poor feeding/ongoing weight loss after 5 days.

Pharmaceutical treatment

This will depend upon the mothers drug use during pregnancy. Mothers will fall into 3 groups:

A. Opiate/Opiod use only
B. Opiate/Opiod plus benzodiazepine
C. Non-Opiate/Opiod drugs only

Groups A & B (Opiate/Opiod Users)

Initial therapy – Oral Morphine solution 60micrograms/kg 4 hourly

Escalating treatment – If symptoms are not controlled within 24 hours
- Increase oral morphine daily by 10micrograms/kg per dose to a maximum 80micrograms/kg/dose.
- If symptoms are not controlled after 48 hours on the maximum dose of oral morphine add phenobarbitone (dose below)

Group C (Non-Opiate/Opiod users)

Initial therapy – Start oral phenobarbitone – loading dose 15mg/kg, followed by maintenance dose 8mg/kg once daily.
Weaning Treatment

This should be commenced when the symptoms of NAS are adequately controlled. This may be defined as a Lipstiz Score ≤ 5 on at least one occasion in the past 24 hours. Also, the symptoms may be considered controlled if the infant is able to be consoled if nursed and they are sleeping for periods of at least two hours between feeds.

**Babies on Oral Morphine Only**

Each day, wean the oral morphine by 10micrograms/kg/per dose.
If symptoms worsen (Scores ≥ 5) during the weaning process, review the maternal drug history and consider addition of oral Phenobarbital rather than stopping or reversing the weaning the morphine therapy. The aim is to reduce and stop the morphine therapy within the first 10 days of life.

**Babies on Oral Morphine and Phenobarbital**

Each day if the scores remain ≤ 5, wean the oral morphine by 10micrograms/kg/dose.
Oral morphine should be weaned completely before reducing the Phenobarbital therapy.
Once the morphine has been discontinued the Phenobarbital may be weaned in hospital or, if there are no other reasons for the baby to remain in hospital, as an out-patient.

Out-Patient – if home circumstances permit, consideration may be given to discharging the baby home on Phenobarbital. This must be sanctioned by a consultant and weekly clinic review organised. Weaning of Phenobarbital at home is generally by 1-2mg/kg weekly. **NB – the Phenobarbital should be prescribed as a hospital out-patient prescription as the Phenobarbital solution available in the community pharmacies is a different strength and is not suitable for these infants.**

**Hepatitis B/C Policy**

**Hepatitis B:** All infants of past or present intravenous drug using parents should receive hepatitis B immunisation irrespective of the mother’s hepatitis B status. Informed consent must be obtained and mums advised that three further doses of vaccine will be required to complete the course. Dates of subsequent doses should be highlighted on the discharge letter. Please refer to the FVRH Immunisation guidelines.

**Hepatitis C:** Vertical transmission of hepatitis C occurs in around 5% of cases of hepatitis C antibody +ve, PCR +ve women. The rate of infection is doubled by co-existing HIV infection. Rates of vertical transmission in hepatitis C antibody +ve, PCR –ve cases are much lower.
Babies born to mothers who are hepatitis C PCR +ve should be notified to Dr Al Hourani and the mothers asked to consent for testing at one year, in case the child is subsequently accommodated. Hepatitis C infection is not a contraindication to breast feeding.
It is important that the discharge letter documents if the child is known to have been hepatitis C exposed, and if the mother has agreed to a follow up.

Discharge Planning

All parents with substance abuse problems, who are identified during pregnancy, should have a named social worker allocated to their care. The name and contact details of this social worker must be recorded in the baby’s notes after delivery. A pre-birth case discussion should have taken place during the pregnancy and an interim Plan made for the care of the child. Following birth, and prior to discharge from hospital, the pre-birth plan must be reviewed, often as part of a formal post-birth case discussion. Where substance misuse is only identified post delivery this process should take place as soon as possible, and must be undertaken prior to hospital discharge. The named social worker must state that they are happy for this child to be discharged to the parent(s) BEFORE the baby goes home, and this MUST be documented in the notes. Any additional arrangements (e.g. mum to live with grandmother etc) that are put in place to ensure the ongoing safety of the child should also be recorded in the baby’s notes. Ideally this decision and information should form part of a written report from the social work team to be filed in the notes. If concerns regarding parental behaviour or ability to care for the child arise between birth and discharge, it is important that these are documented clearly in the notes and are communicated to the social work team. This may either be as a statement to a post birth case discussion or as a written report but should NOT be by word of mouth alone. Every effort should be made to predict the infants discharge so that arrangements can be made well in advance, particularly if the child is to be discharged to foster care. Foster cares should meet with nursing staff prior to the infants discharge so that any care needs can be discussed and/or anxieties dealt with. If the infant is discharged home on medication, this information must be given to the GP before discharge and prompt follow arrangements made at the paediatric OP clinics (discuss with consultant).

Following discharge it is important to let the named social worker know promptly if the parents do not comply with the management plans outlined in these discussions (e.g. failure to attend clinics, failure to administer medication correctly), or if there are any concerns over the care of the child (e.g. parents attending clinic under the influence of alcohol or drugs or signs of abuse/neglect)
At the time of Discharge:

- Inform social work that baby is being discharged
- Document contact details for the family as well (if relevant) details of the foster carer and foster GP.
- Check consent has been obtained for Hep C follow up, if relevant (mothers Hepatitis C PCR +ve)
- If the baby has been discharged to foster care, inform Dr Tucker and The Looked After Team – a copy of discharge letter and subsequent clinic letters sent to Dr Tucker
- Ensure that follow up arrangements have been made (unless consultant decision of no follow up required)
References


2. Jackson L, Ting A, McKay S, Galea P, Skeoch C, A randomised controlled trial of morphine versus Phenobarbital for the neonatal abstinence syndrome. Arch Dis Child 2004;89;F300-4


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