

Neonatal Abstinence

Authors: Chris Day - Sam Wallis – Sam Oddie

Approved by: Neonatal Guidelines group – 13/12/2016

Reviewed NGG 11/12/2018

Reviewed 08/08/2019

Review date: 08/08/2022

Version: 6

Antenatal planning for babies at risk of Neonatal Abstinence Syndrome (NAS)

Postnatal management for babies at risk / showing signs of NAS

- Admission
- Management including pharmacological management
- Breastfeeding
- Co-sleeping
- Discharge

1. Planning neonatal care for babies considered at risk of neonatal abstinence syndrome.

Any pregnant woman identified as an ongoing user of recreational drugs (such as heroin, cocaine etc.), significant alcohol or significant doses of prescribed opiate or other relevant drugs will be informed that her baby will be electively admitted to either TCU or NNU and that observation for 5 days or more will be needed.

It is not possible to predict the development of NAS in individual babies, and so babies should generally not be discharged home before the 5th day. Occasional use of cannabis, or single dose antidepressant use should not normally require 5 days' monitoring postnatally.

During antenatal care the midwife or obstetrician should assess the level of drug and or alcohol consumption at 34 weeks and, following discussion with the mother, complete the blue "neonatal alert" form and forward to the Neonatal secretaries. This should include the plan of care for the newborn.

The Consultant Neonatologists will complete the forms with a plan of care for the baby. These forms will then be distributed to the Obstetric team for uploading to Medway, delivery suite, delivery suite assessment unit and neonatal secretary's office.

The following babies considered at risk of neonatal abstinence should be admitted to the neonatal unit after delivery.

Ill babies

Babies that are to be discharged into foster care

Babies whose mothers are unable to remain in hospital with the baby

Babies born < 33 weeks

Babies born < 1400 g

Babies for whom no cot is available on transitional care

All other NAS babies will be admitted to TCU with their mothers.

NB If the woman reports herself to be drug free, and this is confirmed by drug testing, the baby may be admitted to the post-natal wards.

2. Postnatal Management

Management of babies born to drug using mothers requires close co-operation between professionals and with mothers to achieve the best outcomes. Affected mother no longer (currently) attend a special clinic which means that the “neonatal alert” completed by attending midwifery or obstetric colleagues remains important. Other mothers will only present at delivery when it is important to catch up on missing tests etc. Screening for HIV and Hepatitis C is important and should be strongly advocated in women who have used drugs recreationally.

Admission

On admission to NNU, in addition to taking a careful general and drug history, check and record in baby notes

- Results of Hepatitis C (relatively common in users), Hepatitis B (less common but preventable) and HIV (not common at present but very important)
- Background social information: it will be vitally important to know if the family are going to be able to care for the baby after discharge, or if significant social care input is to be expected. Parents all need our support but we must make sure there has been an appropriate assessment and that there is a discharge plan in place.
- Any antenatal plan re breast feeding (see below)
- Any other missing antenatal care e.g. scans

At admission examination check in particular for possible congenital anomalies (increased risk but still rare), look for signs of other illnesses e.g. sepsis / complications of possible IUGR.

Send first urine in plain bottle for toxicology

Score regularly to assess progress of any abstinence / response to treatment.

Observe in hospital for 5 days.

Management of NAS

It is difficult to predict the severity of NAS – the drug history and even antenatal drug screen may be less than accurate! However, the contrast between a properly taken history and postnatal urine test may be relevant.

Excellent nursing care can help minimise problems e.g. quiet, dark, swaddled and undisturbed. Other non-pharmacological interventions such as pacifiers, or massage may be helpful.

Infants displaying signs consistent with NAS who are also at risk of hypoglycaemia must have their blood sugar measured, and if the infant does not respond to treatment within 24 hours, or if there are any atypical clinical features, plasma calcium, phosphate and magnesium should be measured.

Drug treatment is often given to babies but must be used appropriately. If we give sufficient sedation to eliminate all signs of withdrawal, babies may not be any progress towards a drug free state. Aim for acceptable comfort rather than sedation.

Drug treatment can either aim to provide control over the speed of withdrawal e.g. morphine for withdrawal from opiates or aim to make withdrawal more tolerable by providing limited sedation e.g. phenobarbitone, chlorpromazine (the safety and efficacy of these medications are unclear)^{1,2,3}.

Evidence on the best regimen to use is unclear^{1,2,4}. The most common approach is to use progressive reduction of morphine for babies with significant heroin/methadone exposure and to use sedation after mainly stimulant and benzodiazepine use. Many Bradford NAS babies have been exposed to complex mixtures of prescribed and ‘street’ drugs so it is not possible to have a ‘one size fits all’ approach.

On our current scoring system, drug treatment with morphine (or sedative) should be started when scores are **>10 on two occasions** and can't be reduced by non-drug treatments.

Oral Morphine sulphate (see BNFC)

Start: 40 micrograms / kg / dose 4 hourly review daily

Reduce as soon as tolerable to
30 micrograms / kg / dose 4 hourly then
20 micrograms / kg / dose 4 hourly then
10 micrograms / kg /dose 4 hourly then
5 micrograms / kg / dose 4 hourly then stop.

Weaning babies from benzodiazepines that have a long half-life is difficult to manage; [chlorpromazine hydrochloride](#) may be used in these situations but excessive sedation may occur, evidence for it's use is poor and it is an unlicensed indication.

For babies who are dependent on barbiturates, [phenobarbital](#) may be tried, although it does not control gastro-intestinal symptoms.

Discuss sedative use with consultant before starting. *Doses from BNFC / Evelina formulary.*

If appropriate, start one of

Oral Chlorpromazine at 500-750microg/kg 4 times a day. Maximum dose is 6mg/kg/day. Once dose is stable reduce dose by not more than 2mg/kg/day every 3rd day.

Oral Phenobarbitone at 20mg/kg orally loading dose. Maintenance dose 24hours later 5mg/kg daily in 2 divided doses . After 24-48 hours stability reduce dose by 2mg/kg/dose 48 hourly as tolerated. Levels may need measuring if treatment is prolonged (>5 days)

Apnoea monitoring will be required if sedative medication is being used.

If loose stools, or needing drug treatment, start Kivilon Spray to nappy area adding Orabase if sore.

Remember fever may be due to NAS but always consider sepsis.

Convulsions are not uncommon in withdrawal especially from opiates. However consider other possibilities before trying morphine as anticonvulsant of first choice.

Breast Feeding

Any drug taken by a breast-feeding mother may cross to the baby, but very few drugs are known to be definitely harmful. In general breastfeeding should be encouraged as it can be associated with a reduction in the risk of the infant developing NAS requiring treatment and has many other benefits⁵.

Morphine, methadone and buprenorphine administered to mothers are excreted only in small amounts in breast milk and is considered safe for breast feeding mums. It should be noted that, very rarely maternal codeine (which is metabolised to morphine) can result in neonatal morphine toxicity; codeine should be avoided, or only administered with caution in breast feeding mums ⁶.

Similarly, breast feeding should be encouraged in mothers prescribed SSRIs, particularly if the infant appears unusually irritable.

See Breastfeeding – maternal medication or for questions about individual drugs -

<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>

Breast-feeding is not advisable when:

1. The mother is HIV positive as there is a risk of transmission to the baby (see HIV specific guidance). The risk of transmission of Hepatitis C is less clear, but probably much lower, unless also HIV positive. Mothers who are Hepatitis C positive, but HIV negative, need to understand that there is a possible low risk of transmission, with the potential for long term health risks (cirrhosis, liver malignancy), but the exact risk is not yet known.
2. Mothers are taking Heroin
This can be a difficult judgement. Generally we would not recommend breastfeeding. Heroin use is often chaotic, and this may result in very high levels in the infant.
3. Mothers are taking Cocaine / Amphetamines
Because of its chemical nature, high concentrations of cocaine are expected in milk although breastmilk concentrations can vary over 100-fold⁷. Newborn infants are extremely sensitive to cocaine because they have not yet developed the enzyme that inactivates it and serious adverse reactions have been reported in a newborn infant exposed to cocaine via breastmilk. All mothers should be advised to abstain from stimulant drugs during lactation.
4. Mothers are taking high dose Benzodiazepines
These may have a respiratory depressant effect on the baby.
'High dose' is debatable but any dose over the usual therapeutic dose is worrying (ie. Diazepam 30mg daily, Lorazepam 4mg daily, Nitazepam 10mg daily, Temazepam 20mg daily – BNF doses).

If advice regarding the non-advisability of breast-feeding is rejected by the Mother, this fact should be recorded in the baby and Mother's notes by the person providing that advice.

Co Sleeping

This is a major risk to babies survival. We have had an in hospital death of a baby at BRI, and also deaths have occurred in babies after discharge. In addition there is a risk of injury to babies from falling from beds.

Alcohol and drug use are a common theme in the small number of SIDS like cases now seen by the CDOP panel – in particular when seen with babies who may be somewhat fractious on account of NAS. One possible explanation is that women (who may actually benefit from a postpartum reduction in methadone dosage) and men may unintentionally cause respiratory obstruction to their baby while asleep. The risks of co sleeping are amplified where sofa sleeping occurs.

Postnatally and on admission to TCU, all women on methadone or other drugs (including prescribed opiates) must be advised not to co sleep either in BRI or after discharge. These discussions should be documented and included in any relevant care plans for mother/baby.

If women are found to be co sleeping with a baby who either has, or is being observed for, NAS then the woman should be advised:

- Immediately of the known significant risk of death
- The conversation should be revisited by the consultant ward round
- If there are repeated episodes further consultant review is necessary, and consultation with social care may be required

Discharge

Discharge can be being planned from admission. The following need to be covered:

- Parentcraft
- SIDS (more common but still rare) usual risk reduction emphasising minimising smoke exposure and avoiding co-sleeping
- Managing continuing drug use e.g. who will be supervising baby.

Follow up: Discuss need for follow-up with senior Doctor and Outreach as not all babies will need this

Infants of drug using mothers who are Hepatitis B negative will be offered Hep B immunisation in the community. The One Stop Clinic will liaise directly with the HPA to arrange this and no additional action is needed from NNU staff beyond mentioning in letter.

References

1. Osborn DA et al. Opiate treatment for opiate withdrawal in newborn infants. Cochrane Database Syst Rev 2010, CD002059
2. Osborn DA et al. Sedatives for opiate withdrawal in newborn infants. Cochrane Database Syst Rev 2010, CD002053
3. Mazurier E et al. Comparison of chlorpromazine versus morphine hydrochloride for treatment of neonatal abstinence syndrome. *Acta Paediatrica* 2008. **97**;1358-61
4. Johnson K et al. Treatment of Neonatal Abstinence Syndrome. *Arch Dis Child* 2003. **88**;F2-F5
5. Dryden C, Young D, Hepburn M, Mactier H. Maternal methadone use in pregnancy: factors associated with the development of neonatal abstinence syndrome and implications for health care resources. *British Journal of Obstetrics and Gynaecology* 2009;116:665-71
6. Karen G, Cairns J, Chitayat D, Gaedick A, Leader SJ. Pharmacogenetics of morphine poisoning in a breastfed neonate of a codeine-prescribed mother. *Lancet* 2006; 368:9536
7. Lactmed <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>
8. <http://www.clinicalguidelines.scot.nhs.uk/ggc-paediatric-guidelines/ggc-guidelines/neonatology/neonatal-abstinence-syndrome-nas/>
9. Neonatal abstinence syndrome (NAS) – Neonatal clinical guideline. 2018. Royal Cornwall Hospitals.