South Australian Perinatal Practice Guidelines

Infants of a drug dependant woman

Introduction

- Drug use in pregnancy has adverse effects on both mother and fetus due to both the direct effect of the drugs and the lifestyle linked to illicit drug dependence that frequently entails poor education, hygiene and nutrition, poverty and a chaotic personal life
- Consistency in management of drug dependent women and their babies is valuable
- Neonatal abstinence is the term applied to infants displaying signs and symptoms of drug withdrawal in the context of a mother dependent on illicit drugs and some prescribed medications
- Infants of mothers dependent on amphetamines may exhibit abnormal behaviour and poor feeding. In South Australia, injection of amphetamine and related substances (especially under the age of 25 years) has steadily increased to become the main drug used by injecting drug users.[1, 2]
- Heroin has a short half life, and neonatal withdrawal often manifests in the first one or two days of life. Symptoms mainly affect he central nervous system and gastrointestinal system and include agitation, crying, frequent or poor feeding, poor weight gain, diarrhoea, fever and seizures
- Methadone substitution for heroin use in pregnancy results in improved fetal growth and survival, and less risk of preterm birth.[3,4,5,6] Methadone has a longhalf life, and significant withdrawal may take up to 7 days to become apparent.Methadone withdrawalsymptoms are the same as for heroin but tend to be more severe and of longer duration. The degree of withdrawal is not always related to maternal dose
- Buprenorphine is used as an alternative to methadone in some women because of research suggesting a shorter period of withdrawal. Most babies who demonstrate abstinence symptoms will do so in the first week
- Marijuana use in pregnancy may cause subtle neurobehavioural changes in babies but there is no defined abstinence syndrome
- Cocaine dependence can cause early irritability and later drowsiness in exposed babies
- Antidepressant medication is the commonest cause of drug withdrawal symptoms in infants. Agitation, jitteriness, myoclonus and seizures are described, commencing in the first 4 days and lasting for 2-3 days.
- Not all women will divulge their drug use to health carers, partners and relatives. If an infant has symptoms consistent with opioid withdrawal, a careful history should be taken from the mother in private
- Infants suspected of opioid withdrawal should be examined thoroughly and other possible causes of symptoms excluded. Infection and hypoglycaemia are important differentials

Associations with maternal use of drugs of dependence

- There is no increase in fetal abnormality in mothers who use opioids, amphetamines, and marijuana or antidepressant medications.
- Cocaine use is linked to birth defects due to ischaemia related to vasoconstriction.
- Preterm birth
- Growth restriction and low birthweight
- Neonatal withdrawal
- Sudden infant death [7, 8]

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Prenatal counselling

- Prenatal counselling and preparation of a care plan is important.
- Essential aspects of prenatal counselling should include:
  - The nature of withdrawal and the need for infants to remain in hospital for a minimum of 7 days where there is opioid dependence
  - The use of a neonatal abstinence syndrome (NAS) chart to monitor infant behaviour in the case of opioid withdrawal
  - The clinical criteria for initiating treatment with morphine
  - The need for social work involvement, and where the infant is considered high risk Families SA mandatory notification after birth

Early management

- A medical officer or neonatal nurse practitioner will attend all deliveries of opioid dependent mothers
- A medical officer need not attend deliveries where there is a history of non-opioid drugs of dependence
- Naloxone is not to be used in resuscitation of babies born to opioid dependent mothers as it has the potential to cause life threatening withdrawal symptoms including seizures. Ineffective breathing or apnoea in the newly born is managed by positive pressure ventilation in accordance with ILCOR and Australian Resuscitation Council guidelines
- The mother's hepatitis B, C and HIV status should be checked if not already done
- If the infant is otherwise well, he/she should room in and be observed with mother on the postnatal ward
- If the parents have not received prenatal counselling, the aspects noted above should be broached
- Abstinence scoring using a Neonatal Abstinence Score chart is commenced where there is a maternal opioid dependence
- The baby should be reviewed daily by a medical officer or neonatal nurse practitioner
- Social work services should be notified
- Obtain verbal informed consent from mother for neonatal hepatitis B
- vaccination and administer according to hospital policy
- Hepatitis B immunoglobulin 100 IU and hepatitis B vaccine should both be given as per NHMRC recommendations on the day of birth if mother is HBsAg positive or if hepatitis B status is unknown and urgent serology is unable to determine antigen status. This regimen is 90 % protective
- Urine toxicology screening is useful to determine which drugs the infant has been recently exposed to in utero where this is unclear from maternal history

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Neonatal abstinence syndrome

- If mother is known to be heroin dependent, on methadone treatment or dependent on opioids for other reasons such as chronic pain, the neonate is observed for evidence of the neonatal abstinence syndrome (NAS)
- Neonatal abstinence syndrome is scored using a NAS score chart (a modified
- Finnegan scoring system), as a guide to treatment with morphine or other sedatives.
- Supportive measures (using a pacifier, swaddling, close wrapping, small frequent feeds, providing close skin contact) are important adjuncts to medical treatment

Assessment procedure for abstinence

- Commence evaluation of signs of neonatal withdrawal using NAS score chart within two hours of birth or sooner if signs of withdrawal are evident
- Evaluate baby every 4 hours
- Perform scoring ½ to 1 hour after baby has been fed
- The NAS score chart details signs most commonly seen in the passively addicted neonate
- Babies with an abstinence score of 8 or more for three consecutive scores should be transferred to a Level 2 nursery for supervision by a paediatrician or neonatologist
- If there are inconsistencies in the scores, the baby may be observed for a period of time to ensure morphine treatment is truly indicated
- It is important that the mother is actively involved in the scoring process to facilitate ongoing care for the infant. Staff should discuss each sign as it is assessed
- Commencement of morphine should only occur in a level 2 nursery with supervision by paediatrician or neonatologist.
- Cardiorespiratory monitoring should be used at the commencement of morphine treatment and continued until there is a stable regimen
- Note that the NAS chart is of limited use in the premature infant

Morphine treatment

Score	Dosage (oral)
8-10	0.5 mg / kg / day every 4 hours
11-13	0.7 mg / kg / day every 4 hours
14+	0.9 mg / kg / day every 4 hours

Please note that all doses for the entire period of withdrawal management are calculated on the basis of birth weight and not of current weight

- Once abstinence has been controlled (three consecutive scores < 8), using this dosage regimen, implement the following:
  - Maintain control for 72 hours
  - Initiate the detoxification process by decreasing the total daily dose by 10 % every 72 hours
  - When dosage levels reach 0.2 mg / dose – maintain this dose for 72 hours. At this dose, consideration can be given to home management
  - Change from 4 hourly to 6 hourly dosage regimen (same dose) for 72 hours before stopping all medication
  - When oral morphine treatment is discontinued, the NAS scoring should continue for a further 72 hours

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Vomiting in association with morphine dosing:

- Ensure baby is not being overfed
- Ensure baby is appropriately postured during and after feeding
- Give morphine before the feed

If baby has a large vomit after being given morphine:

- Re-dose if baby vomits within 10 minutes after a dose
- Give ½ dose if baby vomits 10 minutes or more after a dose
- If baby vomits after feed, do not give further morphine (always err on side of caution)

Regulation of the prescription of morphine syrup

The Drugs of Dependence Unit regulates the prescription of morphine for treatment of neonatal abstinence in the context of maternal opioid dependence. The following points should be noted:

- Authority for prescription of morphine syrup for NAS is restricted to qualified paediatricians
- Authority to prescribe requires written application to the Drugs of Dependence Unit from the treating paediatrician in the following circumstances:
  - where inpatient therapy in a public hospital is longer than 14 days
  - pre-discharge, where treatment is to be continued in the community and discharge is prior to 14 days
  - where treatment is commenced in a private hospital
  - where treatment is continued in a private hospital by a paediatrician other than the authorised paediatrician who commenced treatment in the public hospital
- Authority is given for a period of 60 days. An individual authority with a unique number is required for each new patient
- Authority is given subject to the use of morphine syrup in accordance with this Perinatal Practice Guideline or a hospital approved guideline for abstinence treatment
- Authority can be obtained irrespective of parental consent, although consent is desirable
- Exemptions to the requirement for authority are as follows:
  - where inpatient treatment for abstinence in a government hospital is less than 14 days
  - where morphine is prescribed as an inpatient or outpatient as part of a pain or palliative care treatment plan, in which circumstances authority is not required for a period of up to 2 months
- Other paediatricians employed at the same or another public hospital, or a community general practitioner where a paediatrician considers this appropriate, may be a locum prescriber for the authorised prescriber provided this locum:
  - undertakes due care in assessing the baby's treatment including practicing within approved guidelines and consulting appropriately with a paediatrician
  - complies with the conditions of the authority
  - refers to a paediatrician if three or more consecutive doses of morphine are missed
- Application forms are available from www.dassa.sa.gov.au, and are forwarded to the DDU. An authority is then issued to the paediatrician and a copy forwarded to the hospital pharmacist

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Non-opioid withdrawal

- If the mother does not use opioid drugs but uses other central nervous system depressants (e.g. benzodiazepines, barbiturates and alcohol), phenobarbitone is the drug of choice for significant withdrawal symptoms
- The NAS chart is not validated for the assessment of withdrawal with non-opioid drugs but can still be of use in clinical decision making
- Where a mother is on a combination of methadone and benzodiazepines and the infant is not settling with morphine treatment alone, the addition of phenobarbitone treatment may be helpful in the management of withdrawal symptoms

Phenobarbitone Treatment

Score	Dosage (oral)
8-10	15 mg / kg oral or IM stat, then 6 mg / kg / day in 2 divided doses orally
11-13	8 mg / kg / day in 2 divided doses orally
14+	10 mg / kg / day in 2 divided doses orally

- After scores fall below treatment level for 48 hours, the dose should be reduced by 2 mg per dose every 4th day or longer depending on scores

Breastfeeding

- (refer to the PPG, 'breastfeeding for women using alcohol, tobacco and other drug', and to guidelines for breast feeding in the context of specific maternal infections)

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Maternal and neonatal discharge

- Women with drug dependency will require significant post-natal education, ongoing support after discharge, and the safety of their infant after discharge must be considered and ensured. Refer to discharge and follow up link to women with significant psychosocial needs)
- Mothers and their babies are routinely observed as in-patients for at least seven days before being discharged
- Mothers who continue active use of heroin and who are not on a methadone or buprenorphine program, who are at current risk of domestic violence, who have poor social supports or who have been identified by social work or nursing staff as having inappropriate coping or caring skills are of serious concern from a child protection viewpoint and require a comprehensive Social Work and Child Protection Unit assessment before discharge
- While outpatient management of abstinence may be considered when morphine doses reach 0.2mg/dose and the baby's symptoms are well controlled, families for whom home management is appropriate need to be selected carefully. A risk assessment should be performed before discharge on a case by case basis following a multidisciplinary case meeting, and a clear plan formulated with the parents or carers for regular outpatient review and pharmacy dispensing of limited aliquots of oral morphine
- The safety of staff visiting at home should be addressed before discharge in planning meetings
- Discourage the practice of mother and baby sleeping in the same bed as narcotic medication increases the risks of asphyxiation of a baby due to overlaying
- Rooming in for 24-48 hours is encouraged where there has been separation from mother to assist with assessment of mothercraft skills, psychological stability, and for general education and specific instruction regarding administration of medications
- The parents should be counselled regarding the need for hepatitis C screening of their child at 12-18 months where the mother is hepatitis C positive
- Infants of mothers who are HB_SAg positive require hepatitis B serology at 8 months of age to document seroconversion and the efficacy of vaccination

Follow up

- Domiciliary midwifery visits should occur for the first week or two after
- discharge from hospital. The frequency of visits will need to be assessed on an individual basis, and may include daily visits for the first 2-3 days. The frequency of visits may then be reduced to alternate days or twice weekly
- At the time of discharge from hospital a referral should also be made to Child and Youth Health (CYH) requesting targeted home visiting. When domiciliary visits have ceased the domiciliary midwife should contact CYH to inform them so that CYH visits can be arranged
- Infants discharged home on morphine should be followed up by an appointment in the relevant hospital's neonatal clinic 10 – 14 days after discharge. Other infants may be reviewed between 2 – 6 weeks after discharge

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Modified Finnegan Withdrawal Scale

WARD
UNIT NO
SURNAME
OTHER NAMES
DOB / SEX

DATE AND TIME IN HOURS

SYSTEM	SIGNS & SYMPTOMS	SCORE												NEONATAL WITHDRAWAL SCORING CHART (TERM INFANTS)
CENTRAL NERVOUS SYSTEM DISTURBANCES	High-Pitched Cry	2												
	Continuous High-Pitched Cry	3												
	Sleeps < 1 hour after feeding	3												
	Sleeps < 2 hours after feeding	2												
	Sleeps > 3 hours after feeding	1												
	Mild Tremors Disturbed	1												
	Mod-Severe Tremors Disturbed	2												
	Mild Tremors Undisturbed	3												
	Mod-Severe Tremors Undisturbed	4												
	Increased Muscle Tone	2												
	Excoriation (specify area)	1												
	Myoclonic Jerks	3												
	Generalised Convulsions	5												
METABOLIC / VASOMOTOR / RESPIRATORY DISTURBANCES	Fever (37.3°C – 38.3°C)	1												
	Fever (38.4°C and higher)	2												
	Frequent Yawning (>3-4 times)	1												
	Nasal Stuffiness	1												
	Sneezing (>3-4 times)	1												
	Nasal Flaring	2												
	Respiratory Rate > 60 / min	1												
	Respiratory Rate > 60 / min with retractions	2												
GASTROINTESTINAL DISTURBANCES	Excessive sucking	1												
	Poor Feeding	2												
	Regurgitation	2												
	Projectile Vomiting	3												
	Loose Stools	2												
	Watery Stools	3												
	Max Score: 41 **TOTAL SCORE**													
	SCORER'S INITIALS													

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Neonatal Abstinence Syndrome Scoring Chart

Guidelines for Neonatal Abstinence Syndrome (NAS) Scoring

Score 1 for each of the following (except 1).

1. **High pitched cry:** Score 2 if a cry is high-pitched at its peak, score 3 if a cry is high-pitched throughout.
2. **Sleep:** Consider total amount of time baby was asleep between feeds.
3. **Tremors:** This is a scale of increasing severity, and only one score should be made from the four categories. Undisturbed sleep means when the baby is asleep or at rest in a cot.
4. **Increased muscle tone:** Score if the baby has a generalised muscle tone greater than the upper limit of normal.
5. **Excoriation:** Score if skin excoriation occurs more than three to four times in 30 minutes.
6. **Nasal flaring:** Score if nasal flaring is present without other evidence of airways disease.
7. **Respiratory rate:** Score if respiratory rate of greater than 60 per minute is present without other evidence of airways disease.
8. **Excessive sucking:** Score if the baby sucks more than average.
9. **Poor feeding:** Score if the baby is very slow to feed or takes inadequate amounts.
10. **Regurgitation:** Score only if the baby regurgitates more frequently than usual in newborn infants.

Modifications for prematurity are mainly necessary in the sections on sleeping, e.g. a baby who needs three-hourly feeds can only sleep at most 2.5 hours between them. Scoring should be 1 if the baby sleeps less than two, 2 if sleeps less than one hour, and 3 if the baby does not sleep between feeds. Many premature babies require tube feeding. Babies should not be scored for poor feeding if tube feeding is customary for their period of gestation.

If the baby has three consecutive scores averaging more than eight (8), the child should be treated for Neonatal Abstinence Syndrome (NAS).

Reference:

Alcohol Tobacco and Other Drugs (ATOD). Guidelines for nurses and midwives. A framework for policy and standards and clinical guidelines.

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