

Narcotic addiction: the expectant mother and her baby

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Abstract

In a retrospective study of the period 1982-1985, the records of 29 narcotic-addicted mothers and their 42 babies were reviewed. All mothers were from socially deprived backgrounds, had a poor record of ante-natal attendance and had frequent admissions to hospital. Thirteen mothers had a past history of hepatitis B and four were HBsAg positive. The babies had significantly lower mean gestational age and mean birth weight than the control group. Features of withdrawal were recorded in 84% of babies where a history was available. A high incidence of twins (10.5%) was also observed. Testing for HIV antibody in more recent cases has revealed positive results in seven mothers and three babies; one infant has since died from acquired immune deficiency syndrome.

Introduction

In 1985, 1,424 drug addicts attended the National Drug Treatment Centre in Dublin, with 20% estimated to be women of childbearing age, hence the management of their pregnancies had become a very real problem in recent years. Ryan *et al*¹ reported 15 pregnant women who delivered in the Coombe Hospital 1973-1981. The number have since continued to rise. Because of the serious implications of narcotic abuse for the general health and wellbeing of both mother and baby, a review of these patients in the years 1982-1985 was undertaken, to discover the extent of the problem in our maternity and neonatal services, and to look at the effects of drug addiction on mothers and babies.

Patients and methods

In a retrospective study, over the period 1982-1985, we reviewed the patient records of all known narcotic-addicted mothers who delivered babies in the Coombe Hospital during this period, and the records of their babies. The total number of deliveries in the hospital for this four year period was 26,004. We identified 42 babies born to 29 mothers. One mother had four confinements during the study period and six women had two. There were four sets of twins.

In order to control for variables other than drug use, a group of 38 controls (with no known history of drug use) were selected from the hospital birth register on the basis of the next woman delivering who was matched for age, parity, socio-economic status, urban/rural abode and cigarette smoking. Information extracted included personal details, pattern of drug use, obstetric history, neonatal history, and follow-up.

Because of marked departures from normality in most of the variables studied, non parametric statistical tests were used to compare cases and controls throughout.

Results

Maternal data:- The maternal age at delivery ranged from 17 to 32 years with an average of 23 years. Twenty women were single, 12 married and six separated at the time of pregnancy. All partners, where a history was available (29 of 38), were also drug users. All the mothers were from socially deprived areas of Dublin.

Both heroin and methadone were used by the mother in 23 of the 38 pregnancies. Mothers were enrolled in methadone maintenance programmes during 23 of the pregnancies but all continued to use heroin intermittently, so we did not establish a group of methadone-only users.

The dose of methadone received in most cases was no more than 25mg per day. This appears to be a low dose compared to that used in other countries and probably reflects the poor quality of street heroin available to drug addicts in Ireland. All patients except one were cigarette smokers.

Antenatal care (table 1): The study group had significantly

TABLE 1 – Maternal data

	Addict (n = 38)	Control (n = 38)
Antenatal care	32	37
Mean no. antenatal visits	4.7*	7.1
(Range)	(0-14)	(0-13)
Total number hospital Admissions	28	15
Mean duration stay in days	7.7	4.7
(Range)	(1-37)	(3-19)

* $p = 0.006$

TABLE 2 – Hepatitis B and HIV: results of screening

Hepatitis B	n	Tested for HBsAg	Positive for HBsAg
Mothers	29	27	4
Babies	42	27	0
Past history of Hepatitis B		13 mothers	
HIV	n	Tested	Positive
Mothers	29	16	7
Babies	42	7	3

fewer antenatal visits than the controls but had more hospital admissions with longer average duration of stay. (This difference in number of admissions did not reach statistical significance).

Sexually transmitted diseases were diagnosed in the drug-addicted group only, with three women having vulval warts and two babies having gonococcal ophthalmia.

Twenty seven of the drug addicted mothers were tested for hepatitis B surface antigen (HBsAg) and four were found to be positive. However, there was a previous history of hepatitis B recorded in 13 mothers (table 2).

Acquired Immune Deficiency Syndrome: It is estimated that 20-30% of all drug addicts in Dublin are HIV positive, but 46% of pregnant drug addicts have been found to be HIV positive. During 1985 testing for HIV began and seven of the 16 women tested were found to be positive.

Labour and Delivery: For comparison of duration of labour, analgesia in labour, birth asphyxia and mode of delivery, twins and their controls were excluded.

The average duration of labour was the same in both groups, at 4.6 hours. Fewer of the study group received pethidine in labour (this difference was not statistically significant) (table 3).

In the study group, an emergency caesarean section was performed in only one case for fetal distress. Sixteen babies had meconium stained amniotic fluid, fetal bradycardia less than 100 per minute or both (compared to similar findings in 13 of the control babies). One baby in each group required endotracheal intubation for resuscitation. Only one baby had an Apgar score of less than seven at 1 minute, and no baby scored less than seven at 5 minutes.

The mode of delivery showed little difference between the study and control group. There was one caesarean section in each group, with three forceps and one vacuum delivery in the study group, compared with one forceps and one vacuum delivery in the control group.

Neonatal data (table 4): There were four sets of twins, an incidence of 10.5%, compared to the hospital incidence during the study period of 1.2%. There were no twins in the control group. Nineteen of the infants were male and 15 were female.

Fourteen of the 42 babies were preterm, eight of them twins. For purposes of comparison, twins and their controls were excluded from examination of gestation and birth-weight. The mean gestation and mean birthweight were significantly lower in the study group compared to the controls.

Thirty five of the 42 babies were admitted to the special care baby unit (SCBU), the majority for observation. The average duration of stay in hospital was 26 days, significantly greater than the average of nine days for the control babies. There were no stillbirths, but there was one neonatal death, due to complications of prematurity.

In the group of 42 babies there were two congenital abnormalities, a gastrointestinal atresia and a dislocatable hip in a twin breech. In the control group there was one case of congenital heart disease.

Five of the preterm babies, or 36%, developed respiratory distress syndrome (RDS), similar to an overall incidence of 26% among, all premature infants admitted to the special care baby unit (SCBU). One of the three preterm control babies developed RDS.

Jaundice (serum bilirubin greater than 200 $\mu\text{mol/l}$) occurred in five of the 28 term babies, giving an incidence of 18%, compared with 5.6% for the hospital population of term infants, and 5.7% of the control term babies. Four of these five mothers were on methadone. Only one of these babies required treatment with phototherapy. Twenty seven infants had serum tested for HBsAg in the neonatal period. There were no positive results.

Seven babies out of the 42 have been tested for HIV antibody. Four have been found to be negative. Three babies have been found to be HIV positive. One of these had died from AIDS.

Withdrawal syndrome: In four infants it was not possible to comment on withdrawal signs due to a complicated neonatal course, transfer to another hospital or missing records. Of the remaining 38, 32 or 84% showed signs of withdrawal. The features of withdrawal and the order of frequency of their occurrence are shown in table 5. Most babies developed withdrawal signs on day one or day two. All babies who developed features of withdrawal did so by seven days of age. In most cases withdrawal did not continue after 10 days of age.

Convulsions which were ascribed to withdrawal *ie* no other identifiable cause found, occurred in four babies. The time of onset ranged from one to nine days of age.

Despite swaddling, all of the babies who showed withdrawal signs, 10 were considered of sufficient severity to necessitate pharmacological treatment. Eight infants were treated with phenobarbitone alone. One baby was treated with diazepam and one baby received phenobarbitone, diazepam and papaveretum. Duration of treatment ranged from nine days to six months.

None of these mothers wished to breast feed. In the control group, 13% of the babies were breast fed, while the overall rate of breast feeding in the hospital was 30%.

TABLE 3 – Analgesia in labour

Analgesia	Addict (n = 34)+	Control (n = 34)+
Pethidine (total)	12	17
Pethidine along	10	15
Pethidine + Nitrous oxide	0	1
Pethidine +GA*	0	1
Pethidine -t- Epidural	2	0
Nitrous oxide along	2	0
Epidural alone	1	0
GA alone	1	0
No analgesia	18	17

+ *Twins and their controls excluded*

* *GA = General anaesthetic*

TABLE 4 – Neonatal data

	Babies of addicts	Controls	Hospital population
Mean gestation (n = 34) (SD)	38.1* (2.2)	39.3 (2.8)	
Mean birth weight (kg) (n = 34) (SD)	2.85 + (0.58)	3.24 (0.64)	
Twins (9) 95% ci	4/38 (10.53%) (2.94-24.8%)	0/38 (0%) (0-9.25%)	1.2%
Congenital Abnormalities 95% ci	2/42 (4.8%) (0.58-16.16%)	1/38 (2.63%) (0.07%-13.81%)	2.8%
R.D.S in preterm Babies 95% ei	5/14 (35.7%) (12.76-64.86%)	1/3 (33.3%) (0.84-90.57%)	26.4% _o
Jaundice in term babies 95% ci	5/28 (17.9%) (6.06-36.89%)	2/35 (5.71%) (0.7-19.16%)	5.6%

* $p = 0.006$, + $p = 0.004$

ci = confidence interval

TABLE 5 – Features of withdrawal syndrome (n = 38)

	No. of babies
Irritability	24
Jitteriness	24
Hyperthermia •	14
Hypertonia	9
Feeding problems	8
Diarrhoea +	5

Convulsions	4
Tachypnoea *	4
High-pitched cry	2
Vomiting +	2

- *In absence of sepsis; + In absence of gastroenteritis; * In absence of cardiac/respiratory disease*

Follow-up: Attendance for follow-up in the baby clinic of the hospital was quite good, with 33 mothers returning with their babies, the same as in the control group.

According to the information available, the long term outcome for the babies is generally good. One baby developed hydrocephalus secondary to meningitis and had a shunt inserted. This baby had developmental delay. One baby has died from AIDS. One baby had mild developmental delay at 34 weeks. One infant was still hypertonic at six weeks but the mother refused to return with the baby for further follow-up.

On later follow-up, 15 of the babies in the study group were in care. Ten babies were in the care of the Health Board, one under court order, and five were in the care of other family members. No babies in the control group were in care.

After the birth of their babies the majority of mothers attended the Drug Treatment Centre for detoxification. However, most of them were known to have reverted to heroin use and one mother has since died due to an accidental overdose of drugs.

Discussion

We have seen a considerable rise in the numbers of drug-addicted pregnant women and their babies in Ireland, to an extent that may not be reflected in our Western European neighbours, perhaps due to the easier access to contraception and termination of pregnancy in these countries.

In our study we found that narcotic addiction presented 'a wide range of physical and social hurdles to both mother and baby. Although very few of these women had a satisfactory home or stable relationship, most of them, once pregnant, wanted their child. The child often serves as a substitute for personal unfulfilled desires.'³

The infants appeared to tolerate labour and delivery well, with a low incidence of birth asphyxia. There have been conflicting findings from other studies on the relationship between narcotic addiction and birth asphyxia, with some studies finding no increased incidence of birth asphyxia,⁴⁻⁵ while other authors reported a significantly increased incidence.^{6,7}

In the early neonatal period, the main problems encountered by the babies of drug-addicted mothers were related to the high incidence of prematurity and the features of withdrawal syndrome. Problems at a later stage were mainly social in nature.

We found an increased incidence of prematurity in our group at 33%. Prematurity has been associated with maternal narcotic abuse in other studies, the reported incidence varying from 18.5%⁶ and 24%⁸ to 29.5%. Naeye *et al*¹⁰ postulated that the increased incidence of premature deliveries in heroin addicted women might be explained by the fact that he found features of antenatal infection in almost 60% of heroin exposed infants or in their mothers A at the time of delivery and that this may have initiated labour.

In our study, multiple births accounted for 10.5% of total I births, much higher than the general hospital population figure of 1.2%. A study of 830 drug dependent mothers⁶ found an incidence of 3.4% of multiple births, significantly higher than the control group incidence of 1.2%, although other authors did not find an increased incidence of twin deliveries.^{9,11,12}

Maternal use of narcotics does not seem to result in an increased incidence of congenital abnormality.^{7, 9, 11} Although one study⁶ found a significantly increased incidence of congenital malformation, the types of malformation were as varied as those seen in the control infants or in the general nursery population. Our finding of two abnormalities included only one which was potentially lethal.

It has been suggested that severe hyperbilirubinemia is more common in babies of mothers treated with methadone than heroin.¹³ Of the term babies in our group we found a high incidence of jaundice and in four of five cases the mother was receiving methadone.

Features of withdrawal syndrome were reported in most of the infants in the study group. It was not possible to correlate withdrawal symptoms with drug dosages and timing of administration as this was a retrospective study. Despite reports of late withdrawal in association with maternal methadone use,¹⁴ we found that no baby who had previously been a symptomatic was documented as developing withdrawal syndrome after the age of seven days. While in most cases the symptoms and signs were not considered of sufficient severity to warrant sedation, the possible long term effects of drug withdrawal must be considered. Some authors⁵ treated all infants showing signs of withdrawal, regardless of severity. Phenobarbitone alone was found to be a satisfactory treatment of withdrawal syndrome in most of our cases. The dosage and duration of treatment required varied. Paregoric (camphorated tincture of opium) has "frequently been used in the treatment of neonatal narcotic withdrawal. Another study¹⁵ found no obvious differences in short term outcome between phenobarbitone and paregoric treatment, although the phenobarbitone-treated infants required a shorter period of therapy.

As it is not possible to predict which babies will develop signs of withdrawal and, in particular, those who will go on to have convulsions, it would seem wise to admit all babies of narcotic-addicted mothers to a special care unit for a period of observation of at least one week from birth. Herlinger *et al*¹⁶ found that the mean time of onset of seizures was 10 days, this fact reinforcing the need for prolonged observation of some babies.

Hepatitis B infection and AIDS may prove to be the major problems facing these mothers and babies in the long term. Many of the mothers had evidence of contact with hepatitis B virus. The hospital policy in the latter years of the study period was to immunise actively and passively the babies of mothers who were positive for HBsAg. While HBsAg screening of some of our infants did not reveal any positive results, this would reflect only the transplacental spread. Birth is the time when a baby is most likely to contract hepatitis B from the mother,^{17,18} and therefore long term follow-up of hepatitis status on these babies would be appropriate.

Testing for HIV was first introduced in the Coombe hospital in mid-1985 and problems associated with having results of this test have become apparent, with many mothers becoming depressed and showing signs of inability to cope when told that they or their babies are antibody positive. Several mothers have expressed feelings of isolation due to the attitude of hospital staff towards them on being made aware of their positive antibody status. Considerable psychosocial support is required prior to and after testing. If a good rapport between patient, social worker and doctor has not been established it is generally preferable to defer testing. Children who are HIV positive will also present a problem in relation to foster care and adoption.

While the problem of narcotic use may be here to stay, there are ways in which the general health and wellbeing of the mother and baby involved may be improved. Areas in which there is scope for improvement in the care of these patients are in better education of the mother with regard to regular antenatal care, more comprehensive assessment of social circumstances antenatally, and advice on family planning; an observation period of at least one week for all babies (preferably with mothers remaining in hospital) and early recognition and treatment of withdrawal syndrome in babies, with a standard treatment programme. These babies will require a standardised regime of follow-up for the first few years of life which would include developmental assessment, and screening and treatment for hepatitis B and AIDS. There are many practical difficulties to be overcome and co-operation between hospital services and community care is essential to ensure the best possible care for this highly at-risk group.

Above all, in view of the widespread hysteria concerning AIDS, we feel that particular care should be taken to avoid treating these mothers and babies as social outcasts.

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