

Narcotic addiction in pregnancy

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A retrospective controlled analysis of the obstetrical and foetal outcome of 40 pregnancies complicated by maternal narcotic addiction are reported. An incidence of 1.8 in 1000 live births was observed in this study population. There were statistically significant differences between the pregnant narcotic addicts and the control group in terms of marital status, smoking habits, family income, antenatal booking time, incidence of sexually transmitted disease, preterm deliveries, number of male babies, number of small-for-date infants, incidence of neonatal jaundice, and postnatal visit defaulters. Pregnant narcotic addicts were also found to have an associated history of irregular menstruation, previous history of preterm deliveries and intrauterine growth retardation, abnormal cervical cytology, and antepartum anaemia. There was no difference in age, parity, past history of infertility, duration of labour, mode of delivery, third-stage complications, puerperal complications, and neonatal complications between the two groups. A comprehensive programme is needed to provide education, medical surveillance, counselling, and support for this high-risk pregnancy group.

HKMJ 1995;1:201-206

Key words: Narcotic dependence; Pregnancy; Substance abuse

Introduction

Narcotic addiction is a major social and medical problem in many parts of the world, including Hong Kong and other countries in Southeast Asia. According to government data,¹ an increase of 7.7% in the number of newly reported drug addicts occurred in 1992, compared with 1991. The proportion of female addicts has steadily increased over the past decade. In 1992, 15.8% of all newly reported addicts were female, whereas only 5.7% of addicts were female in 1983. The proportion of young addicts under the age of 21 rose from 38.2% in 1991 to 47.7% in 1992. Approximately 90% of female addicts were aged from 16 to 40 years, with a mean age of 27.8 years.

With the increase in female addicts in the reproductive age group, the number of women getting pregnant with a history of narcotic addiction has shown a steady increase. In 1989, our hospital's annual report recorded five women with narcotic addiction (1:1000 live births); in 1992 this number rose to 16 (3.1:1000 live births).² This is a review

of the problems and complications- both narcotic and foetal-which are associated with narcotic addiction in pregnancy.

Subjects and methods

All patients with a history of heroin or methadone abuse at any time during their pregnancies were included in this study. A total of 43 patients, who delivered in our Department of Obstetrics and Gynaecology during the period 1 January 1989 to 31 July 1993, were identified. During this time, there were a total of 21 847 live births delivered in the department. The hospital records of the female addicts and their neonates were analysed. For each study case, an age- and parity-matched control was selected at or close to the time of hospitalisation of the study subject by perusing the birth register. Two patients who abstained from narcotic addiction before pregnancy, and one patient who aborted after an intra-amniotic injection given in China (for termination of pregnancy at 23 weeks of gestation) were excluded. The records of the neonates born to the addict mothers were also reviewed; only 38 records were available for analysis.

All addict patients were referred to medical social workers for counselling and were introduced to the methadone outpatient treatment programme provided

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by the government Department of Health. Acute detoxification was not advised.

The significance of differences between the study and control groups was evaluated using relative risk (RR) with upper and lower 95% confidence limits (95% CI). The significance of difference between the means was evaluated by the χ^2 test or Student's *t* test where appropriate.

Results

During the study period, there were 21 847 deliveries in our department and 40 pregnant women were found to be narcotic addicts. The incidence was 0.8% (1.8:1000 live births).

Age and parity

The mean age of the study patients was 29.4 years. The mean parity was 2.3 and 37.5% of the study patients were primigravidae.

Menstrual history

Forty percent of patients in the study group had a history of irregular menstrual cycles, compared with only 21.4% in the control group. However, there was no statistically significant difference between the two groups ($P>0.05$).

Marital status

Approximately 90% of patients in the control group were married, compared with only 47.5% in the study group. This difference was significant ($P<0.01$).

Past obstetrical history

In the study group, more patients had a prior history of preterm deliveries than were found in the control group (Table 1). This difference was significant. However, the difference in intrauterine growth retardation between the study group and the control group was not significant.

One patient in the study group had experienced abruptio placenta in her previous pregnancy; there was no such history in the control group.

There was no significant difference between the two groups in terms of the number of pregnancy terminations, spontaneous abortions, ectopic pregnancies, stillbirths, and infertility.

Past medical history

One patient in the study group had undergone a splenectomy 10 years previously because of a history of

Table 1. Past obstetrical complications in pregnant addicts

	Study group n=40 No. (%)	Control group n=42 No. (%)	RR*	95% CI [†]
Preterm delivery	8 (20)	2 (4.8)	4.2	1.11-15.95
Intrauterine growth retardation	8 (20)	3 (7.1)	2.8	0.96-9.13

*RR Relative risk
[†]95% CI 95% Confidence interval

jaundice and splenomegaly. Three patients had a history of asthma; one had a history of epilepsy and mild aortic stenosis; and another had a history of schizophrenia.

In the control group, one patient had a history of chronic hypertension; one had asthma and aortic and mitral valve regurgitation; and a third had a history of schizophrenia.

Social history

Almost 9% of the women addict's husbands were also narcotic addicts; 9.3% of the husbands were in jail at the time of the study; and 18.6% of the patients admitted that they were working or had worked as prostitutes. The family income was significantly less in the study group, and 17.5% of this group refused to attend sessions with the hospital's social workers.

Narcotic history

Almost seventy-three per cent of the patients in the study group were found to be narcotic addicts during the antenatal period. A further 22.5% did not attend for any antenatal care and were found to be narcotic addicts at the time of admission. Five percent of these patients hid their history of narcotic addiction until they were in labour.

The average duration of drug addiction was 5.9 years. Most were on heroin (42.5%) and 15% were maintained on methadone. Twenty-five per cent changed to methadone during their pregnancy and 10% took both drugs. Three patients managed to abstain from narcotic addiction during their pregnancies. The doses administered by addicts were difficult to assess accurately as these depended on the purity of the drugs used and their prices. The

average amount spent each day by our patients was HK\$244.50. The average dose of methadone taken was estimated to be 42 mg daily.

Many of the patients (85%) in the study group were also cigarette smokers, smoking an average of 16 cigarettes daily, which was significantly higher than the percentage of smokers in the control group [9.5% ($P < 0.001$)].

Antenatal bookings

Patients with narcotic addiction usually booked late for their antenatal care. The average gestational age at first visit was 26.8 weeks (range, 13 to 41); this was four weeks later than that of the control group ($P < 0.02$).

Sexually transmitted diseases in pregnancy

Routine antenatal screening for sexually transmitted diseases showed a significant difference between the narcotic addicts and the control group (Table 2). However, as the number of patients with the different types of sexually transmitted disease was small, further interpretation of the data could not be done.

Cervical dysplasia and carcinoma in pregnancy

Two patients in the study group had abnormal cervical smears but none were reported in the control group (Table 2). Colposcopically-directed biopsy showed cervical intraepithelial neoplasia (CIN III) in one patient who subsequently had treatment with large loop excision of the transformation zone of the cervix. The second patient had early invasive carcinoma of the cervix and a Wertheim's hysterectomy was performed.

Human immunodeficiency virus and hepatitis B carriers in pregnancy

Since 1992, all patients who are intravenous heroin addicts have been checked for serological evidence of human immunodeficiency virus (HIV). All 11 patients who had the tests showed negative findings. Four patients refused to undergo the testing.

The rates of hepatitis B (HB_sAg) carriers did not differ between the two groups.

Obstetrical complications

A significant difference was observed between the two groups in terms of the number of preterm deliveries that occurred (Table 3). One-third of deliveries in the study group were early (32.5%) compared with 9.5% of those in the control group ($P < 0.05$).

A higher proportion of patients in the study group also experienced antepartum anaemia, but the differ-

Table 2. Sexually transmitted disease and abnormal cervical cytology in pregnant addicts

	Study group n=40 No. (%)	Control group n=42 No. (%)	RR*	95% CI†
Abnormal cervical cytology	2 (5)	0		
Sexually transmitted disease	11 (27.5)	1 (2.4)	11.55	2.60-51.25
a. Syphilis	2 (5)	0		
b. Gonorrhoea	3 (7.5)	0		
c. Tricho monas vaginitis	6 (15)	1 (2.4)	6.3	1.08-36.79

*RR Relative risk
†95% CI 95% Confidence interval

ence was not significant. There were no differences between the two groups in the incidence of impaired glucose tolerance, breech presentation, antepartum haemorrhage of unknown origin, premature rupture of membranes, and meconium-stained liquor.

There were also no differences between the two groups in terms of duration of labour, mode of delivery, third stage complications, puerperal pyrexia, and postpartum anaemia.

Postnatal visits

Thirteen patients in the study group defaulted on their postnatal check-up appointments, while seven patients refused the help of the medical social workers.

Neonatal characteristics

Sixty-five per cent of the babies in the study group were boys, which was significantly higher than the 40.5% observed in the control group ($P < 0.05$).

The average birth weight of the babies in the study group was 2.72 kg, which was significantly lower than that of the control group [3.12 kg ($P < 0.01$)]. In the study group, there was very little difference in the birth weights of babies born to mothers abusing heroin (2.61 kg) and those taking methadone (2.75 kg).

Table 3. Obstetrical complications in maternal narcotic addiction

	Study group n=40 No. (%)	Control group n=42 No. (%)	RR*	95% CI†
Antepartum anaemia	6 (15)	2 (4.8)	3.15	0.75-13.29
Impaired glucose tolerance	1 (2.5)	4 (4.8)	0.26	0.04-1.89
Breech presentation	0	3 (7.1)		
Pre-eclampsia	2 (5)	0		
Antepartum haemorrhage of unknown origin	1 (2.5)	1 (2.4)	1.05	0.06-17.36
Abruptio placentae	2 (5)	0		
Premature rupture of membranes	2 (5)	1 (2.4)	2.1	0.21-21.01
Meconium staining of liquor	8 (20)	11 (26.2)	0.77	0.35-1.69
Preterm delivery	13 (32.5)	4 (9.5)	3.41	1.34-8.72

*RR Relative risk
†95% CI 95% Confidence interval

The proportion of babies who were small for their gestational age with weights less than the 10th percentile for their gestation was significantly higher ($P<0.05$) in the study group (22.5%) than in the control group (2.4%).

No neonatal or postneonatal deaths were reported in either group.

Narcotic withdrawal syndrome in neonates

All babies born to addict mothers were transferred to the neonatal ward for observation. Two of these

babies required admission to the neonatal intensive care unit.

Most babies (84.2%) showed the usual signs of narcotic withdrawal such as jitteriness, irritability, increased muscle tone, tachypnoea, repeated vomiting, poor feeding, and unstable body temperature. The earliest clinical features appeared two hours after delivery and the latest developed such features in the fourth day of life. However, the dosage and interval between the last dose of narcotic intake and delivery were not recorded in the case records.

The majority of babies (81.3%) with narcotic withdrawal syndrome were treated with either phenobarbitone or chlorpromazine. Two babies exhibited withdrawal symptoms following naloxone injections.

A minority of babies born to addict mothers (15.8%) showed no withdrawal symptoms. Three mothers of these babies stopped narcotic addiction at least one month before delivery: one was on methadone before pregnancy and two had changed to methadone after the first antenatal visit.

Neonatal complications

Apart from an increase in the incidence of neonatal jaundice in the study group, there was no significant difference in the incidence of any other neonatal complications between the two groups (Table 4).

Discussion

Maternal narcotic addiction is associated with a number of social, medical, and obstetrical problems.³ It is well known that there is a high risk of hepatitis, HIV infection, venereal disease, skin abscess, glomerulonephritis, vasculitis, and bacterial endocarditis in drug addicts—particularly intravenous drug users. In our group of pregnant addicts, apart from a significantly higher incidence of venereal disease which is possibly related to lifestyle, none of the diseases mentioned was observed. A positive result for HIV has not yet been reported in pregnant addicts in Hong Kong.

Women who are narcotic addicts have a greater risk of developing cervical dysplasia and carcinoma of the cervix. This is also due to their sexual behaviour which includes an earlier sex life, multiple sexual partners, and the risk of contracting the sexually transmitted human papilloma virus, believed to be associated with cervical intraepithelial neoplasia and carcinoma of the cervix. In our study, the

Table 4. Neonatal problems in maternal narcotic addiction

	Study group n=40 No. (%)	Control group n=42 No. (%)	RR* 95% CI [†]
Neonatal jaundice	14 (36.8)	3 (7.1)	5.16 (1.92-13.89)
Neonatal anaemia	1 (2.6)	0	
Respiratory distress	1 (2.6)	0	
Septicaemia	1 (2.6)	0	
Hypocalcaemia	2 (5.3)	0	
Hypoglycaemia	1 (2.6)	0	
Congenital pneumonia	2 (5.3)	0	
Urinary tract infection	1 (2.6)	0	
Metabolic acidosis	1 (2.6)	0	
Oral thrush	1 (2.6)	0	
<i>Chlamydia trachomatis</i> eye infection	1 (2.6)	0	
<i>Neisseria gonorrhoea</i> eye infection	1 (2.6)	0	
Undescended testis	1 (2.6)	0	
Abdominal tumour	1 (2.6)	0	

*RR Relative risk
[†]95% CI 95% Confidence interval

two cases with cervical pathology were detected as a result of antenatal cervical smear screening. For drug addicts who may never have attended any screening programme before, antenatal cervical smear screening may represent the only opportunity a clinician has to diagnose and help prevent the spread of this precancerous condition.

As well as a higher incidence of venereal disease in female drug addicts, a higher incidence of infertility has been reported.^{4,5} However, a higher incidence of infertility in the addict group was not observed in our study; only one patient from each group had a history of infertility. Nearly half of our study group had a history of termination of pregnancy and 62.5% of these were multiparous women.

The majority of addicts booked late into the antenatal clinic and 22.5% came to the labour ward as non-booked cases. One of the reasons for the late booking may be due to the irregularity of menstruation in this group. Addicts may not realise that they are pregnant until a grossly distended abdomen or foetal kicks are noted. In addition, addicts may worry that they might not be able to maintain their drug habit once they attend for antenatal care. Other social or financial reasons may also prohibit them from seeking early medical assistance.

Preterm labour was one of the major obstetrical problems in our study group and the incidence of 20% is comparable with one series⁶ but lower than other reports^{4,7} The incidence of intrauterine growth retardation is also lower than in other reports. As both poor maternal nutrition and chronic cigarette smoking are contributory factors to restricted foetal growth, the fact that fewer patients in our study group were cigarette smokers may explain the lower incidence.

We did not observe any increase in the incidence of premature rupture of membranes, pre-eclampsia and meconium staining of liquor, compared with other series.⁸⁻¹¹ Such differences may be due to an epidemiological difference in the population we studied and a difference in the type and number of drugs being abused by the study subjects. While cocaine abuse has increased and become the most popular substance of abuse in the United States, heroin remains the most popular drug of abuse in Hong Kong.

Neonatal abstinence syndrome occurred in 84.2% of the study babies, similar to other series.^{4,6} It has been reported that intrauterine exposure to more than one opiate will not alter the severity of the abstinence syndrome, and term babies tend to have more severe manifestations of the syndrome than do preterm infants.¹² Apparently, methadone seems to be associated with less neonatal withdrawal. However, it must be stressed that acute detoxification should not be attempted during pregnancy because of the risk of sudden intrauter-

ine foetal withdrawal and intrauterine death. The higher incidence of neonatal jaundice in our series may have been related to prematurity.

It is apparent that maternal narcotic addiction is becoming a major health care issue not only in Hong Kong, but also in other cities in Asia. Early recognition and adequate medical and social support are important aids in helping pregnant addicts maintain methadone therapy through childbirth, thus leading to fewer obstetrical complications and more favourable neonatal outcomes. In view of the addicts' lifestyles, screening for sexually transmitted diseases and cervical pathology is essential. A comprehensive care programme with a special day centre are prerequisite for the successful management of this high-risk group of pregnant women.

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