Hospital Topics

Babies born in a district general hospital to mothers taking heroin

H M KLENKA

Abstract

The effect of maternal abuse of heroin on newborn babies was studied in 25 babies born during 1982-6 to 23 heroin users, most of whom smoked the drug. Nineteen of the babies developed withdrawal symptoms, which in 12 were severe enough to require treatment. Five babies were born prematurely; 17 were adequately grown for their gestational age. Four mothers successfully established breast feeding. Twenty two infants were discharged from the hospital into their mother's care with support from the family and community services; at the end of the study only six were living in families in which the parents were married or had a stable relationship.

Withdrawal symptoms were short lasting and often self limiting, and no evidence of adverse effect on postnatal growth and development was found. Unstable social circumstances with changes in family dynamics made follow up difficult. Further assessment needs to be carried out to investigate the long term effect of maternal heroin abuse on children.

Introduction

Since the opening in 1982 of this district general hospital, which delivers some 4500 women a year, the incidence of drug abuse among pregnant women seems to have risen. Special problems arise in the management of pregnancy, delivery, and postnatal care in drug abusers. I report this hospital's experience of 23 pregnant women using heroin and their babies.

Patients and methods

PREGNANT WOMEN

From 1 February 1982 to 31 January 1986, 23 women taking heroin alone or in combination with other narcotics or "soft drugs" were under the care of the maternity unit at this hospital. Two women delivered twice during the period of the study.

The drug history was given by the pregnant woman or was known to her general practitioner or midwife. In some cases information about drug abuse came from a relative or friend. Routine inquiry about smoking, alcohol, and drug taking was made of all the women antenatally.

All pregnant women who use heroin are referred to a consultant obstetrician for hospital care, and continuity is maintained with the help of the community midwife. Treatment at the hospital's drug detoxification and rehabilitation clinic run by the department of psychiatry is offered, and the maternity social worker is informed. All of the women had been taking heroin before they became pregnant, 20 by smoking, two by intravenous injection, and one by both methods. One of the women who injected heroin intravenously had been a registered addict for 13 years, and the other, who was suffering from a terminal neoplastic illness, was given heroin throughout her pregnancy. Five women stopped taking heroin at the time pregnancy was diagnosed and stayed off it until after delivery. Only eight women accepted the offer of treatment at the drug detoxification and rehabilitation clinic during pregnancy, and in all eight it was unsuccessful. Three independently stopped taking heroin in the second or third trimester of pregnancy, but 17 women took heroin throughout their pregnancy and at the time of delivery.

The age of the women ranged from 16 to 33. Eighteen women (78%) were single; this contrasts with the rate of illegitimate births of 19·9% in Wirral during 1982-4. Only seven of the mothers attended the antenatal clinic early in their pregnancy and continued with regular visits until delivery. Most attended late, but all attended before confinement.

BABIES

Over the four years of the study 25 babies were born to the 23 mothers, three in 1982, three in 1983, six in 1984, and 13 in 1985. The average length of pregnancy was 38·2 (range 31-41) weeks. Five of the babies were born before 37 weeks of gestation. Five babies were delivered by caesarean section, which in two cases was carried out as an emergency because of fetal distress. All the remaining babies were born by spontaneous vaginal delivery. All were admitted to the special care baby unit for observation for withdrawal symptoms. A scoring system was used to select infants requiring treatment.[1] The babies were observed every four hours for tremor, irritability, hypertonicity and hyperactivity, vomiting, high pitched cry, sneezing, respiratory distress, fever, diarrhoea, sweating, and convulsions. A score of 0 to 2 was allotted to each of the 11 symptoms according to severity. All babies with a total score of 6 or more at the time of observation received treatment, as did several babies with lower scores but with early or sustained severe symptoms. Heroin metabolites in the mother's and baby's urine were looked for routinely only for the last nine babies born.

Fetal growth was assessed by plotting birth weight and occipitofrontal head circumference on standard growth charts.

Results

Nineteen of the 25 babies developed withdrawal symptoms within the first 24-48 hours. Twelve of them received treatment with phenobarbitone, chloral hydrate, and chlorpromazine either separately or in combination. The mean duration of symptoms was seven (range 3-20) days. The maximum score was usually registered on the third day. The most commonly observed symptoms, in order of frequency, were sustained irritability, difficulties in feeding and sleeping, hyperactivity, excessive sneezing, and vomiting. Fever and diarrhoea were rarely observed, and none of the infants had a convulsion. The total score ranged from 2 to 11 (mean 5·3). Drug treatment was continued until the score fell to 4 or less—that is, for an average of 5·4 (range 2-9) days. Seven of the infants with withdrawal symptoms did not require sedation, and the average duration of symptoms in this group was 4·2 days (range 3-7 days).

In 17 infants the weight or head circumference, or both, was on or below the 50th percentile; these two variables were each below the 10th percentile in six babies. Eight babies were small for their gestational age.

Every mother was helped and encouraged to nurse her baby, first in the special care baby unit and then in the postnatal ward. Four established full breast feeding and affirmed their intention to continue this after discharge

Arrowe Park Hospital, Upton, Wirral, Merseyside L49 5PE
H M KLENKA, MRCP, DCH, paediatric registrar

from hospital. Three of these claimed that they had stopped taking heroin when they found they were pregnant. The babies remained in the hospital on average for 14 days after birth, but length of stay was often dictated more by social than medical reasons. Two of the mothers took their babies home against medical advice at 2 and 4 days old respectively.

Twenty two of the babies were discharged from the hospital to the care of the mother, often with close support from the maternal grandmother or another near relative. Three families were provided with regular long term daily help at home by the social services homemaker service. Three babies were placed directly in foster care, one after the mother had died from terminal neoplastic disease and the two others because maternal care was expected to be poor and there was no family support. Later two other babies were accepted into short term voluntary foster care, but they subsequently returned to their mothers. At the end of the study only one baby continued in foster care; nine were with their mothers though were cared for by a close relative; nine lived in single parent families; three were in families in which the relationship between the mother and her boyfriend was stable; and three were in families in which the parents were married.

An appointment at the hospital paediatric clinic was offered for 21 babies; 14 attended on one or more occasion and were found to have normal somatic and developmental progress.

Routine community clinic assessments are made on children in Wirral at 6 weeks, 6 months, 9 months, and 2 and 3 years. Six babies attended all appointments offered, five attended some, nine attended only once, and three were not seen at all. Three were found to have delayed physical growth in early infancy, one had delay in developing locomotor and social skills, and one failed the hearing test at 9 months. Four infants received all immunisations recommended for their age; in 11 immunisation was incomplete; and five were not immunised at all. Three babies were below the age for vaccination. None of the babies was known to have died.

Discussion

There are differences between the health of the infants reported on here and that of infants born to heroin addicts in the United States, where one study reported a neonatal mortality of 6·7%.[2] The degree of severity and duration of symptoms of acute withdrawal were milder in our babies, and subacute signs of withdrawal persisting until the third to sixth months of life were not seen.[1] The main reason for this is likely to be that a much smaller dose was taken by the mothers. Although the incidence of heroin abuse seems to be rising among adolescent girls and young women attending the antenatal clinic, the increase is almost entirely in people smoking heroin rather than taking it intravenously. Some of the drug is lost during inhalation, and the concentration of the powder offered for sale may vary.

Our findings in this small number of infants suggest that intrauterine growth including head growth is suboptimal. This is probably due to several socioeconomic factors, and how much, if any, part is played by the direct effect of heroin on the fetus is uncertain. Overall the major impression gained in this study was not of serious physical defect or dangerous withdrawal symptoms in the infants but of the social difficulties and unhappiness of the mothers.

The presence of the drug detoxification and rehabilitation clinic within the hospital is an investment for the future but in practical terms seems unlikely to have a bearing on the outcome of the established pregnancy. Education about drug addiction for all schoolchildren and their parents has been introduced in an attempt to control the problem of drug misuse.

I thank Dr J Seager for his invaluable help and advice, Dr P J Todd and Dr P W Wilkinson for allowing me to study patients under their care, Dr T W Osborn for encouragement, and Miss L Blair for typing the manuscript.

References

1 Kelnar CJH, Harvey D. *The sick newborn baby*. London: Baillière Tindall, 1981.
2 Fricker HS, Segal S. Narcotic addiction, pregnancy and the newborn. *Am J Dis Child* 1978;**132**:360-6.
3 Wilson GS, Desmond MM, Verniaud WM. Early development of infants of heroin-addicted mothers. *Am J Dis Child* 1973;**126**:457-62.

(*Accepted 16 July 1986*)

MEDICINE AND THE MEDIA

"SCIENTISTS CRACK enzyme secret of baby killer" read the sensational headline in the *Sunday Times* of 7 September, and two days later a leading article in *The Times* on the same was headed "The Doctors' Dilemma." The *Sunday Times* called it "a scientific breakthrough that promises to take the mystery out of many cot deaths and to save the lives of hundreds of babies," and *The Times* called for neonatal screening nationwide, although it thought that at £250 per test (that is, £150m per annum to screen all British babies) it was "difficult to see where the money will come from." The story was relayed in the press and on television, and the Foundation for the Study of Infant Deaths was swamped with telephone calls. Doctors may be forgiven for asking, "What test? What breakthrough? What is it all about?"

In June 1985 this journal published a report from workers in Sheffield about liver enzyme defects in the sudden infant death syndrome.[1] The livers of 200 cot death victims had been examined microscopically, and 14 were found to show fatty changes identical with those seen in Reye's syndrome. Activities of cytochrome oxidase and succinate dehydrogenase were measured in five of the livers and were found to be normal in all of them, suggesting that there was a specific defect of another enzyme (unlike Reye's syndrome, in which many mitochondrial enzymes are deficient). Two of the five livers were assayed for fatty acyl-coenzyme A dehydrogenase activity, which was found to be deficient in both. The authors concluded that in all cases of cot death the liver should be examined for microvesicular fatty change and that when this is found mitochondrial enzyme activity should be assessed.

This was a preliminary report of continuing research. They had shown microvesicular fatty change in 7% of cot death babies and produced evidence that this was due to a specific inherited metabolic defect in two cases. It could be inferred that such a defect was probably present in three other babies and possibly in all 14. The results were obviously of considerable interest and called for confirmation and further expansion of the research. The work raised the possibility of population screening for the enzyme deficiency or antenatal detection by amniocentesis in mothers with a previously affected child as in theory the harmful effect of the enzyme deficiency might be overcome by avoiding hypoglycaemia. This is, however, speculative as the feasibility of these measures has yet to be established.

The *Daily Telegraph* of 8 September reported the "breakthrough" but in addition quoted one of the research workers as saying, "We had not yet intended to publicise this research since it is only the end of the second year in a three year programme." Apparently, the enzyme assay needs a steady supply of pigs' kidneys, and the Sheffield workers had sought local publicity to help them get the kidneys from abattoirs. "That is how the news leaked out."

Does it matter that the lay press should so widely publicise research findings against the better judgment of the research workers and before the issues have been widely debated within the profession? We think that it does. Peer review and professional analysis are an essential part of the scientific process, and for the press to sensationalise a "breakthrough" before it has been fully subjected to that process is to give the public only half of the story. It is therefore potentially misleading and misconceived, as was *The Times*'s call for nationwide neonatal screening in this instance. It is interesting that the tendency to exaggerate seems irresistible. Fatty change in the liver is found in 5-7% of cot death babies. If it is assumed that all these babies have the inherited enzyme defect, that would account for 75-100 of the 1500 cases in Britain each year. *The Times* put the figure at between 100 and 200, and the *Telegraph* said 200.

It is important to note that the Sheffield team did not themselves seek national press publicity. Almost all medical research workers fully recognise the importance of the assessment and discussion of their work within the profession, but with a press eager for sensational breakthroughs it would not be difficult for less scrupulous individuals to court national publicity by premature release of their findings. Such an action would rightly be condemned by the profession.—D P ADDY, consultant paediatrician, Birmingham, and ALISON GREEN, subeditor, *BMJ*.

1 Howat AJ, Bennett MJ, Variend S, Shaw L, Engel PC. Defects of metabolism of fatty acids in the sudden infant death syndrome. *Br Med J* 1985;**290**:1771-3.