

SAMPLE CHAPTER FROM:

Modern Management of Perinatal Psychiatric Disorders

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Puerperal psychosis

Studies have suggested that the few weeks after delivery are when a woman is at highest risk of a psychotic illness. Kendell *et al* (1976) demonstrated that in the 3 months following childbirth, women are more than 20 times as likely to be admitted with a diagnosis of a psychotic disorder. However, Terp & Mortensen (1998), using women from the general population as controls, found that the relative risk of all admissions was only increased slightly (RR=1.09) but that for a first admission with functional psychosis between days 2 and 28 after delivery the relative risk was 3.21. Harlow *et al* (2007) found a similar incidence of hospitalisation in first-time mothers (0.01%), noting that this was largely confined to women who had previously had a psychotic or bipolar illness and that most of the postpartum episodes occurred within 4 weeks of delivery. More recently, using women who had delivered in the 11–12 months previously as controls, a Danish group (Munk-Olsen *et al*, 2006) found the risk raised in the first 3 months and highest for first-time mothers 10–19 days postpartum (RR=7.31). Similarly, the risk of psychiatric out-patient contact was increased in the first 3 months and highest 10–19 days after delivery (RR=2.67). The prevalence for the first 3 months was 1.03 per 1000 births. Women with schizophrenia-like disorders were more likely to be admitted within the first month after delivery and women with bipolar illness within the first 2 months of delivery. Kendell *et al* (1976) identified a later peak of admissions from the 10–24th month after delivery.

Puerperal psychoses are severe illnesses that onset within 2–4 weeks of delivery and will usually require admission. Affective illnesses predominate, most often fulfilling diagnostic criteria for major depression with psychotic features, mania or schizoaffective psychosis (Dean & Kendell, 1981; Meltzer & Kumar, 1985; Pfuhlmann *et al*, 1998). A proportion can only be classified as ‘unspecified functional psychosis’ and around half meet Leonhard’s criteria for cycloid psychosis (Pfuhlmann *et al*, 1998).

Organic psychoses occurring in relation to childbirth have been recognised and documented since the time of Hippocrates and include idiopathic confusional states, stupor, post-eclamptic psychosis, infective delirium,

delirium associated with anaemia and alcohol withdrawal (Brockington, 1996), subdural haematoma (e.g. Campbell & Varma, 1993) and, more recently, meningioma (Khong *et al*, 2007) as presenting with psychotic symptoms postpartum. Organic psychoses, particularly infective delirium, may still be a common cause of puerperal psychosis in some low- and middle-income countries (Ndosi & Mtawali, 2002).

Phenomena

The early signs of illness are often non-specific, for example insomnia, agitation, perplexity and odd behaviour. Such symptoms can easily be overlooked or attributed to postpartum blues and their significance not recognised. However, the patient may be floridly psychotic within a few hours as onset is frequently very rapid and often occurs only a few days after delivery.

When the symptomatology of 58 women with puerperal psychosis and 52 women with non-puerperal psychotic illnesses (including schizophrenia) was compared, the puerperal group were found to be less likely to have persecutory or systematised delusions, auditory hallucinations, odd affect and social withdrawal than the non-puerperal controls. However, they were more likely to have manic features such as elation, lability of mood, rambling speech and distractibility as well as more confusion and increased need to be supervised during tasks (Brockington *et al*, 1981). Conversely, a South African study comparing 20 puerperal women with psychosis and 20 age-matched controls with mania (Oosthuizen *et al*, 1995) observed the puerperal group to be more likely to have delusions of control, auditory hallucinations, blunted affect and emotional turmoil. However, their findings are limited by the following: many puerperal women with psychosis have a depressive illness but were excluded from the study; the patients were not randomly selected; a third of the puerperal group had a history of treatment for schizophrenia. Four women meeting criteria for delusional misidentification as in the Fregoli syndrome have been described (O'Sullivan & Dean, 1991).

Apparent cognitive deficits are not unusual. A US study compared 21 women who had childbearing-related affective psychoses with 96 women whose psychosis was not related to delivery. They found that the recently delivered group had 'more prominent symptoms relating to cognitive impairment and bizarre behaviour' and more homicidal ideas than the control group (Wisner *et al*, 1994). Mood-incongruent delusions are not infrequent, for example delusions of reference or persecution, and there may be visual, tactile or olfactory hallucinations which again suggest an organic syndrome.

Catatonic symptoms such as waxy flexibility, stupor, mutism, immobility and negativism have been reported in the literature (e.g. Hanson & Brown, 1973; Lai & Huang, 2004) and observed in clinical practice, but their true prevalence in the postpartum population is not known. One case of

catatonic stupor reported in the literature was found to have an atypical posterior reversible encephalopathy syndrome (Kitabayashi *et al*, 2007).

Epidemiology

The last few decades have seen a fall in mortality and morbidity from childbirth but this has not been paralleled by a fall in the incidence of puerperal psychosis, which has remained remarkably stable at 0.5–1.0 per 1000 deliveries (Meltzer & Kumar, 1985; Terp & Moretensen, 1998; Munk-Olsen *et al*, 2006; Harlow *et al*, 2007). However, if a woman has had a past episode, the risk rises to one in seven (Kendell *et al*, 1987).

Risk factors for admission in the puerperium identified in early studies include being primiparous, single and having had a Caesarean section (Kendell *et al*, 1976, 1981, 1987; Meltzer & Kumar, 1985). Kendall *et al* (1987) found an association with a history of perinatal death not found in the other studies. Paffenbarger (1964) also identified being older, having longer intervals between pregnancies and fertility problems as being risk factors. A large study of first-time mothers in Sweden over a 12-year period ($n=502\,767$), identified older age and being single as risk factors (Nager *et al*, 2005). Analysis on the same data-set also found that those living in the poorest neighbourhoods had a significantly higher risk of admission (Nager *et al*, 2006). In a within-participant comparative study of 129 women with bipolar affective puerperal psychosis, Blackmore *et al* (2006) identified primiparity (OR=3.76) and delivery complications (OR=2.68) as independent risk factors.

There are differences in the sleep patterns of women in late pregnancy and the postpartum period that are more marked in first-time mothers. Women with puerperal psychosis may have a longer labour and be more likely to deliver at night than controls (Sharma *et al*, 2004), and sleep loss has been suggested as a final common pathway for various causal factors in the development of psychosis in vulnerable women (Sharma & Mazmanian, 2003).

In low- and middle-income countries there is high comorbidity with physical health problems including anaemia, infection and oedema proteinuria hypertension gestosis (Agarwal *et al*, 1990; Ndosi & Mtawali, 2002) but some authors have noted the close match between the incidence, pattern of illness and associated findings in a Black African population and those described in the literature in populations in the Western world (Allwood *et al*, 2000).

Onset, course and prognosis

Paffenbarger (1964) reported that there was usually a 'lucid interval' after delivery before the development of symptoms. A third of his sample developed symptoms within the first week, 68% within the first months and 80% inside 6 weeks. In a study of women admitted to hospital in Japan, half

had an onset of illness in the first week postpartum and 56% in the second week; 80% became ill within the first month (Okano *et al*, 1998). However, a recent study refutes the notion of a latent period, with 50% of women with bipolar experiencing puerperal psychotic symptoms on days 1–3 with 22% of onsets on day 1 (Heron *et al*, 2007). Early symptoms include feeling excited, elated or high, not sleeping, feeling energetic or active and talking more (Heron *et al*, 2008).

There is often a time lag between onset of illness and admission but several studies indicate that women with manic episodes are admitted more quickly than those with depressive psychoses (Dean & Kendell, 1981; Meltzer & Kumar, 1985; Okano *et al*, 1998) and that psychotic depressions onset earlier than non-psychotic illnesses (Meltzer & Kumar, 1985).

The course of illness can be fluctuating and involve very severe disturbance but the prognosis of the acute episode is good, with most women making a good recovery and returning to premorbid functioning. In the longer term, however, there is a risk of further episodes both after subsequent pregnancies and at other times.

Brockington *et al* (1982) summed the findings of six studies published between 1956 and 1972 and estimated the combined risk of recurrence to be about one in five for each subsequent pregnancy. Others estimate it at 25–50%. For example, Pfuhlmann *et al* (2000) followed up women 6–26 years after a first-episode puerperal psychosis and observed a 47% recurrence rate after later deliveries. Puerperal recurrence after subsequent pregnancies in a recent 10-year follow-up was 75–80% for women whose index illness was a psychosis and 27.3% for those in whom it was depression (Garfield *et al*, 2004). The risk of non-puerperal episodes appears to be higher.

Da Silva & Johnstone (1981) found 50% of a hospitalised sample remaining well after 1–6 years follow-up. Of the remainder, 2 had died by suicide, 3 were long-term in-patients, 14 were in out-patient care, 1 was on lithium but well, and 3 were not in treatment and unwell. They noted a poorer outcome in women with an index schizophrenia illness. Dean *et al* (1989) observed a 36% recurrence rate if the index episode was puerperal but 50% if it was not. Similar findings were reported by Schöpf & Rust (1994), but others found a higher recurrence rate in those with index puerperal episodes (40% v. 31%), though this was a smaller sample (Hunt & Silverstone 1995). Videbeck & Gouliaev (1995) followed up 50 women 7–14 years after their first psychotic episode which was puerperal. Forty per cent of the women were not working to full capacity owing to mental disorder, 60% had had recurrences and schizophreniform symptoms in the index episode predicted incapacity to work. Only 4% of women had exclusively puerperal episodes.

Garfield *et al* (2004) followed up 66 women 10 years after hospitalisation with a puerperal illness. The recurrence rate was 87.2% and the readmission rate 63.3%. The strongest predictor of recurrence was a past psychiatric

history. Women with no previous psychiatric history or who had only experienced previous puerperal episodes do better at follow-up (only 38.9% relapsed) than those who had a prior history of non-puerperal illness (70.9%). Most of the women in this study had a diagnosis of major depression. Of 61 women reviewed after 25 years since a puerperal psychotic episode (various diagnoses), 63.9% had had further episodes, with the average number of episodes being 4.8 (Rohde & Marneros, 1993). A 9-year follow-up of women with clearly defined bipolar affective puerperal psychosis found 57% experiencing additional puerperal illnesses and 62% non-puerperal episodes (Robertson *et al*, 2005).

Psychosis in pregnancy

There are case-reports of psychosis occurring (Brockington *et al*, 1990) and recurring during pregnancy (Glaze *et al*, 1991). Howe & Srinivasan (1999) report a case of Cotard's syndrome occurring around the 33rd week of pregnancy. The woman jumped out of the upstairs window of the obstetric unit sustaining multiple fractures. Her baby was delivered by Caesarean section and she was treated with electroconvulsive therapy (ECT). In 2003, Friedman & Rosenthal reported a case of delusional disorder and borderline personality disorder in the third trimester. The patient was treated successfully with olanzapine and psychotherapy. Another report describes a woman presenting at 28 weeks gestation with symptoms initially like eclampsia but who within 48 h of Caesarean delivery of her infant became floridly psychotic. It was then assumed that her initial presentation had in fact been catatonic stupor (Ranzini *et al*, 1996). Mbassa Mencik (2005) reports 12.5% of women with psychotic disorders relating to childbirth presenting to a hospital in Cameroon becoming acutely ill while pregnant.

There are also case-reports of psychosis occurring after termination of pregnancy or miscarriage (e.g. da Silva & Johnstone, 1981; Davidson & Clare, 1998; Brockington, 2005), hydatidiform mole (Hopker & Brockington, 1991) and male-to-female gender reassignment (Mallett *et al*, 1989).

Many of these women have gone on to suffer from puerperal psychoses after subsequent pregnancies which went to term, suggesting a link between late pregnancy, post-abortion and postpartum triggers.

Relationship to bipolar disorder

Chaudron & Pies (2003) reviewed the evidence base from 1966 to 2002, which includes the follow-up studies cited above, and concluded that it 'supported a link between postpartum psychosis and bipolar disorder' with many but not all puerperal psychotic episodes falling within the bipolar spectrum. The evidence base to support this is growing. The high risk of recurrence of bipolar disorder after delivery and management of this is discussed in Chapter 4.

Aetiology

Genetics

In the early 19th century, Esquirol noted that puerperal psychosis tended to run in families (Esquirol, 1838). Dean *et al* (1989) observed a significant and substantial increase in affective morbidity in first-degree relatives of women who had experienced puerperal psychosis compared with women with bipolar who had not had a puerperal episode. Puerperal psychosis has a close relationship with bipolar disorder and there is compelling evidence from family, twin and adoption studies that genes influence susceptibility to bipolar disorder, although the mode of inheritance appears complex and it is likely that interaction of several susceptibility genes is required. There are case reports of monozygotic twin pairs concordant for puerperal psychosis (e.g. Kane, 1968) and a familial clustering where there was consanguinity (Craddock *et al*, 1994). Jones & Craddock (2001) have demonstrated that women with bipolar whose first-degree relative has had an episode of puerperal psychosis are more likely to experience a puerperal episode following subsequent pregnancies than those who have no first-degree relatives with puerperal psychosis. In addition, women with bipolar who have had a puerperal episode are more likely to have a first-degree relative with an affective disorder than women without a history of puerperal episodes (Jones & Craddock, 2001).

Variation at the serotonin transporter gene is influenced by oestradiol. The presence of one allele (Stin2.12) was associated with an almost four times risk of puerperal psychosis (OR=3.9), an effect that increased when the phenotype was restricted to women who had experienced multiple episodes (Coyle *et al*, 2000); recent work has shown linkage with chromosomes 16p13 and 8q24 (Jones *et al*, 2007).

Dopamine

Oestrogen modulates monoamine neurotransmitter systems including the dopaminergic system. The rapid fall of circulating gonadal steroid hormones after delivery paralleling the often acute onset of symptoms led to the hypothesis that women who become psychotic may have supersensitive dopamine receptors, particularly D₂ receptors. Two cases in which puerperal psychosis was accompanied by abnormal extrapyramidal movements support this idea (Vinogradov & Csernansky, 1990) and there are case reports of puerperal psychosis following treatment with bromocriptine (e.g. Canterbury *et al*, 1987; Reeves & Pinkofsky, 1997; Pinaro Zabala *et al*, 2003). The dopamine agonist apomorphine was used by Wieck *et al* (1991) to test this by giving apomorphine to postpartum women with a history of psychosis and to controls 4 days after delivery. The women who had recurrences of psychosis had greater growth hormone responses than the controls and those who remained well. However, a later study was unable

to replicate these findings and found no difference between those at high risk of recurrence and controls (Meakin *et al*, 1995).

Wieck *et al* (2003) demonstrated that women predisposed to bipolar relapses in the puerperium had greater growth hormone responses than controls in the midluteal phase of the menstrual cycle but not in the follicular phase.

Thyroid

The relationship between non-psychotic puerperal depression and thyroid function has been described in Chapter 2. The literature relating to psychotic puerperal illnesses and thyroid abnormalities is limited to a case-report of a woman who developed psychotic depression at 3 months postpartum and who also had thyroiditis. Her symptoms resolved when she became biochemically euthyroid (Bokhari *et al*, 1998).

Women's experiences

Women who have suffered from postnatal depression feel very strongly that it is different from other mental illnesses, precipitated by childbirth and with a biological aetiology. As such, they feel that it requires specialised treatment. Those who had been treated in general psychiatric services felt frustrated and angry that their specific needs were not met and that they had been treated like everyone else. Other important themes were loss of aspects of motherhood, control, future pregnancies, and disruption of social roles and relationships (Robertson & Lyons, 2003). Hanzak (2005) has written a vivid account of her illness, hospitalisation and recovery.

Suicide

'Why Mothers Die 2000–2002' (Lewis & Drife, 2004), highlighted suicide as a major cause of maternal death, and, like the 1997–1999 CEMD report (Lewis & Drife, 2001), found suicide to be the leading cause of indirect or late-indirect deaths for the year following delivery. The majority of these deaths appeared to be of women suffering from psychosis or a very severe depressive illness. Oates (2003) has estimated the suicide rate for puerperal psychosis to be 2 per 1000 women. Lindahl *et al* (2005) estimate that suicide accounts for 20% of maternal deaths even though the rate for all delivered women in the year after birth is lower than that of the general population. 'Saving Mothers' Lives' (Lewis, 2007) found a decrease in the numbers of maternal suicide, which if it persists in the next triennium, will suggest that some of the strategies recommended are being implemented.

The most common profile of a woman who is at risk of suicide in late pregnancy or after delivery is a White, older woman in her second or subsequent pregnancy, married and living in comfortable circumstances. She is likely to have had contact with psychiatric services and a history of

mental illness, and may be in current treatment. She is likely to die violently (e.g. by hanging, drowning, jumping from a height or in front of a train, by causing an intentional road traffic accident, self-immolation or throat cutting).

Self-harm

A review in 1968 estimated that between 5 and 12% of women attempting suicide were pregnant (Whitlock & Edwards, 1968). In 1984, 0.07% of calls to a US metropolitan poison control centre were from or about pregnant women (Rayburn *et al*, 1984) and the attempt reported was usually her first. Half of the overdoses reported were taken during the first trimester, most commonly using an over-the-counter analgesic, iron or a vitamin.

Studies in Sweden and the USA have found that issues relating to pregnancy and interpersonal difficulties are often cited as the main provoking factors for self-harm in pregnant women. These may include prior loss of children (through death, termination or adoption), desire for a termination or the potential loss of a partner as reasons for their act.

One review assessed 27 studies that reported rates of suicidal ideation, intention, attempts and completed suicide in pregnant and postpartum women (Lindahl *et al*, 2005). Suicidal thoughts (assessed by endorsement of item 10 on the EPDS, 'the thought of harming myself has occurred to me') occurred in up to 14% of pregnant women. The authors observed lower rates of suicide during pregnancy than that in the general population, but that when suicide did occur, violent methods were used. Particular groups at risk are teenagers and women from cultures where being unmarried and pregnant is stigmatised. Women with past histories of abuse are also more likely to die by suicide. A US study of over 2000 women who attempted suicide found that those more likely to harm themselves were young, single, multiparous, less well-educated and more likely to be African-American. Of these, 26% misused substances (Gandhi *et al*, 2006). Follow-up found that those who self-harmed were more likely than controls to have a preterm labour, a Caesarean delivery and require a blood transfusion. Their infants showed an increased risk of respiratory distress syndrome and low birth weight.

Infanticide

Although the majority of women who die by suicide do not also kill their infant, the 2000–2002 CEMD report (Lewis & Drife, 2004) identified three cases where the infant was also killed at the time of the suicide. In two cases, an older child was also killed at the same time and four suicides occurring in pregnancy near term also resulted in the death of a viable infant. Infanticidal ideas are common in populations with severe postpartum mental illness. Chandra *et al* (2002) report 43% having suicidal ideas, 36% reporting infanticidal behaviour and 34% reporting both. Depression and psychotic

ideas predicted infanticidal ideas, while the presence of psychotic ideas towards the infant predicted infanticidal behaviour.

Infanticide is a legal term used in the UK to refer to the killing of a child under the age of 12 months. Neonaticide is not a legal term but refers to the killing of a child within 24h of birth. Craig (2004) has reviewed the associated factors and Friedman *et al* (2005a) included infanticide and neonaticide in a wider review of child murder. Women who commit neonaticide are usually young, poorly educated and primiparous. They are often living at home with their parents and often have concealed their pregnancy. Most do not have a mental illness at the time of killing their child. Very few of them have a psychotic disorder and where a psychiatric diagnosis is found, this is more likely to be a personality disorder or a mild or borderline learning disability.

Mothers who commit infanticide are more likely to be older and married or living with a partner. There is more likely to be a mental illness present and the infant death is often part of an extended suicide or occasionally an altruistic act based upon a delusional idea that some terrible fate was about to befall the infant. Mothers with schizophrenia who relapse in relation to pregnancy or childbirth may incorporate the infant into their delusional system or be acutely disturbed and carry out the act with no rational reason.

Substance misuse is a factor often associated with infanticide and only very rarely is it the consequence of factitious disorder by proxy.

Friedman *et al* (2005b) examined a case series of mothers who had killed their children and were adjudicated as 'not guilty by reason of insanity' (n=9). Their children's ages ranged from birth to 16 years (mean=3.7; a third were infants). Over 80% of the mothers had a psychotic disorder or mood disorder with psychotic features and many had had recent contact with psychiatric services. Almost half had made previous suicide attempts and 56% had planned suicide along with the death of their child. Half of these women had depression and the majority were experiencing auditory hallucinations including command hallucinations to kill their children. Three-quarters were delusional at the time of the killing and two-thirds of these had delusions that involved their children. These delusions frequently involved a belief that the child was possessed by the devil or demons, that the mother herself was a god or religious figure and that some terrible thing would happen to the child. Over a third were pregnant or within the first postpartum year. The most common method used was suffocation.

In England and Wales, women who kill a child under the age of 12 months are usually disposed of by the judiciary by means of Chapter 36 of the Infanticide Act 1938 (Office of Public Sector Information, 1938). This allows for the occasion when a mother:

'...causes death of her child under the age of 12 months by wilful act or omission, but at the time of the act or omission the balance of her mind was disturbed by reason of her having not fully recovered from the effect of having

given birth to the child or by reasons of the effect of lactation consequent on the birth of the child...’.

In Northern Ireland, the relevant legislation is the Infanticide Act (Northern Ireland) 1939. In Scotland, there is no specific legislation and general homicide laws are imposed instead.

Disposal is usually non-custodial and can be tied in with ongoing treatment in a community rehabilitation order with conditions of treatment or a hospital order. However, this somewhat outdated law gives rise to anomalies. For example, a woman who kills her infant who is a day over a year old, despite clear evidence of her illness being consequent upon childbirth, will be charged with murder and despite a plea of diminished responsibility, will be much more likely to receive a custodial sentence. In 2006, the Homicide Act was revised and recommendations made (Law Commission, 2006; Box 3.1). However, at the time of writing these changes are still under discussion.

Management

Assessment

The assessment of any acutely ill puerperal woman is essentially the standard psychiatric examination (history, mental state examination and physical examination) with the addition of the bio-psychosocial context of recent childbirth and the infant’s well-being to consider as well as the mother’s, that of her partner, other children and family members.

Box 3.1 Homicide Act 2006 revisions and recommendations

Infanticide

9.27 We recommend that the offence/defence of infanticide be retained without amendment (subject to ‘murder’ being replaced with ‘first degree murder or second degree murder’). (Paragraph 8.23)

9.28 We recommend that in circumstances where infanticide is not raised as an issue at trial and the defendant (biological mother of a child aged 12 months or less) is convicted by the jury of murder [first degree murder or second degree murder], the trial judge should have the power to order a medical examination of the defendant with a view to establishing whether or not there is evidence that at the time of the killing the requisite elements of a charge of infanticide were present. If such evidence is produced and the defendant wishes to appeal, the judge should be able to refer the application to the Court of Appeal and to postpone sentence pending the determination of the application. (Paragraphs 8.46 and 8.58)

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It is essential in all women with psychosis or depression to assess suicidality and infanticidal ideas. Delusions should be clearly defined and the content examined carefully for reference to harming herself and/or her infant and/or older children. A mother who believes that her child has changed in some way, looks strange, is not hers or is, for example, evil, is at risk of harming that child.

Chandra *et al* (2006) found that 53% of women with a severe postpartum illness and 78% of those with psychotic postpartum disorders had delusional beliefs about their infant. The mothers whose delusions involved believing that the baby was a devil, ill-fated or was someone else's baby were more likely to shout at or hit the infant or to have attempted to smother it. Caregivers of those women who believed their baby was God were more likely to consider her unsafe with her baby and other delusions (more elaborate or bizarre) were associated with being unable to manage chores related to the baby and with talking negatively about it.

A number of rating scales have been devised to assess disturbances of the mother–infant relationship. The Bethlem Mother–Infant Interaction Scale has seven sub-scales and was designed to be used on a weekly basis by nursing staff on an in-patient unit (Kumar & Hipwell, 1996). It can be repeated to monitor progress. There are also scales that assess mother–infant bonding (Brockington *et al*, 2001; Taylor *et al*, 2005). The two latter scales have been compared (Wittkowski *et al*, 2007).

Beware the patient who superficially appears to have an acute mental disorder but if an adequate history and examination are performed is found to have an acute medical or surgical problem. There are case reports of chronic subdural haematoma presenting as puerperal psychosis in which the patient's complaint of persistent headache after epidural anaesthesia was ignored (Campbell & Varma, 1993), and a woman appearing confused and complaining of auditory hallucinations and *déjà vu* the day after a Caesarean delivery, who was found to have a meningioma (Khong *et al*, 2007). The misattribution of physical symptoms to functional psychiatric disorder can cause a delay in making the correct diagnosis or lead to the admission of acutely medically ill women to psychiatric hospitals. Such mistakes led to the deaths of several women reported to the last two CEMD reports (Lewis & Drife, 2004; Lewis, 2007).

In-patient care

Most women with acute psychosis will require admission, as will some of those with a severe depressive illness and other diagnosis. Women who require acute admission for a severe mental illness in the postpartum should be admitted to a specialist mother and baby unit unless there are compelling child protection issues which preclude this. In Scotland this is now enshrined within the Mental Health (Care and Treatment) Act 2003 (Office of Public Sector Information, 2003).

Drug treatment

Most women with psychotic illnesses will require antipsychotic medication in addition to antidepressants and/or mood stabilisers, depending on the precise nature of the episode. Care should be taken not to over sedate a woman caring for an infant, particularly if she is breastfeeding and needs to do night feeds. However, in the early days of an admission many women will require their baby to be looked after in the nursery at night to allow them to sleep. At other times even women with severe psychosis can, with the support of nursery nurses and psychiatric nurses skilled in the care of mothers, undertake a good deal of infant care and maintain a close bond with their baby.

There are case reports of neuroleptic malignant syndrome occurring in women with puerperal psychosis (e.g. Price *et al*, 1989; Alexander *et al*, 1998) and some authors have postulated that women with puerperal psychosis might be more likely to experience it. It can be difficult to distinguish clinically from the 'organic' features of the illness or acute sepsis and other physical complications of the postpartum period. However, it should be considered if a patient appears to deteriorate after medication with psychotropics and the serum creatinine phosphokinase level checked. Prescribing for breastfeeding mothers is discussed in Chapter 9.

Women with depression in a retarded or stuporose state may need anticoagulating if they have recently delivered and are inactive. As such, women may well need ECT; an anaesthetic opinion should be sought well in advance.

Oestradiol

There are three small case series examining the role that oestradiol might have as an effective treatment for puerperal psychosis. The first two describe women with low oestradiol levels and refractory to antipsychotics being given sublingual 17 β oestradiol. The rise in serum concentrations is reported as paralleling the improvement in symptoms (Ahokas & Aiko, 1999; Ahokas *et al*, 2000a). In the third study, 10 women with puerperal psychosis and low oestradiol levels after delivery were given sublingual 17 β oestradiol three to six times daily until the serum concentration was 400 pmol/l (Ahokas *et al*, 2000b). Symptoms measured by the Brief Psychiatric Rating Scale improved by the end of the first week, but it should be noted that two-thirds of the women had had treatment before starting oestradiol (psychotherapy and antipsychotics), though this was reported as being ineffective. None of these studies report any safety data, which is important given the potential risks of thromboembolic events and endometrial hyperplasia. Clearly there is a need for larger, controlled, methodologically sound studies before oestradiol can be declared an effective and safe treatment for puerperal psychosis.

There is a published report of progesterone used as a treatment for puerperal mania (Meakin & Brockington, 1990) but the improvement in the

two cases reported in this paper could be attributed to the antipsychotics that were also prescribed. There are no controlled data to support the use of progesterone as a treatment for puerperal psychosis.

Electroconvulsive therapy

There has long been a belief that puerperal psychosis is particularly responsive to ECT and this has been confirmed by one study (Reed *et al*, 1999) in which women with puerperal illnesses showed greater clinical improvement than those with non-puerperal disorder. The use of ECT in pregnant women is described in Chapter 8.

Psychological treatment

Although no specific intervention has been trialled in women with puerperal psychotic illnesses, it is clear that many would benefit from psychotherapeutic work, particularly when the acute phase of the disorder is settling. There may be specific issues that need addressing such as bereavement or coping with stressful life events and marital problems, in addition to coming to terms with having been acutely ill and what that means for the future. A woman with her first psychotic episode and her partner will benefit from education about the disorder, the risk of recurrence after later pregnancies or at other times and what can be done to prevent it recurring (the prevention of puerperal psychosis is described in Chapter 7).

Contraception

Contraceptive needs must be addressed and in place before a woman begins periods of home leave. Do not assume the primary care team will deal with this on discharge. Depot norethisterone enanthate given within 48 h of delivery has been associated with depressive symptoms (Dennis *et al*, 2008) so long-acting progestogens are unlikely to be the best option for women with mood disorders. If in doubt, seek advice from the midwife with a responsibility for contraceptive advice or the local family planning clinic. Mother and baby units should keep a stock of condoms to give to patients who have not made any contraceptive plans before going on leave.

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