Clinical Course of Illness in Women With Early Onset Puerperal Psychosis: A 12-Year Follow-Up Study

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ABSTRACT

Objective: To complete a follow-up analysis at a mean of 12 years after patients had presented with an early onset puerperal psychotic index episode.

Method: A retrospective design was used. Patients with puerperal psychosis and onset within 4 weeks after childbirth who had been referred to the Psychiatric Department of the Ludwig Maximilian University of Munich, Munich, Germany, between 1975 and 1995 (maximum: 24 years, minimum: 7 years) were followed up after a mean of 12 years post index episode. Ninety patients were included in the study. Before the index episode, 35 of the patients had previous nonpuerperal psychoses, while 55 patients presented their index episode as the first manifestation of a psychotic illness. Diagnostic evaluation at follow-up was performed by the Structured Clinical Interview for *DSM-IV* Axis I Disorders according to *DSM-IV-TR*. Differential rates of risk of psychotic relapse were calculated. Data on some gynecologic variables (postpartum blues, premenstrual tension, psychiatric symptoms triggered perimenstrually, mood symptoms while taking oral contraceptives) were collected. Clinical and psychosocial outcomes were measured by the Global Assessment Scale and Disability Assessment Scale.

Results: Patients who presented with major depression and bipolar affective disorder with psychotic features at the initial index episode showed overall diagnostic stability. Many patients with initial brief psychosis (cycloid psychosis) shifted to a clear bipolar affective disorder. The general risk of a psychotic relapse was high (previous psychosis = 0.77 vs first psychotic manifestation = 0.56; not significant). The risk after further pregnancies was 0.57 versus 0.48, respectively (not significant), and the risk regarding at least 1 other psychotic nonindex episode was 0.71 versus 0.44, respectively ($P = .015$). Gynecologic variables did not significantly discriminate between the groups. In some patients, a possible link to a hormonal susceptibility was discussed. Patients who remained without any further psychotic relapse (n = 24) had a favorable outcome.

Conclusions: Puerperal psychosis of an early onset seemed to be of a prevailing affective nature. Brief psychosis (cycloid psychosis) during a puerperal index episode showed a strong link to bipolar affective disorder in the further course of illness. Outcome was excellent in patients without a further psychotic relapse.

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Puerperal psychosis usually refers to an acute, often dramatic onset of psychosis shortly after childbirth. In the vast majority of patients, the episode manifests within days to a few weeks.[1] Time frames of the postpartum period as defined in research studies vary widely. The diagnostic range is also broad. Patients typically present with affective psychoses including severe psychotic depression, mania, and schizoaffective forms. As a rule, exacerbations of previously diagnosed schizophrenic disorders during the postpartum period are not subsumed under the term *puerperal psychosis*. Various organic psychoses and several nonpsychotic conditions have to be differentiated.[2,3]

Puerperal psychosis seems to be a relatively rare condition on a general epidemiologic level, as approximately 1 in 1,000 childbearing women are affected.[4–6] Most follow-up and family studies underline a strong link to affective disorders, in particular bipolar affective disorders.[7–9] Personal or family history of affective disorders, especially bipolar affective disorder,[10] and of previous puerperal psychosis may significantly increase the risk of puerperal psychosis.[11–14]

The exact mechanisms in the etiopathogenesis of puerperal psychosis are still unknown. The first molecular genetic studies indicate a significant link to chromosomes 8 and 16 that require further confirmation.[15,16] Rapid hormonal changes (eg, levels of estrogen) after pregnancy may mediate a neurobiological vulnerability (eg, dopaminergic neurotransmission).[17] With respect to socioeconomic risk variables, a state of primipara has been consistently reported.[18] Being an older patient or first-time mother has been discussed in a few studies as a risk variable.[19,20] Delivery complications have also been reported to increase the risk of puerperal psychosis,[21,22] but this is not unanimously supported.[20,23–25]

This retrospective study presents data on a mean 12-year follow-up (maximum: 24 years, minimum: 7 years) of a sample of women who experienced a puerperal psychotic index episode during the first 4 weeks after delivery. The data on early onset manifestation of puerperal psychosis were taken in order to reach a more homogeneous group of patients. The main focus of this study included diagnostic development, further risk of psychotic relapse, possible influence of gynecologic variables, and psychosocial outcome. We proposed the following hypotheses:

1. Patients with puerperal psychosis and previous psychotic episodes before the index episode differ from patients with puerperal psychosis as the first psychotic manifestation with respect to further puerperal and nonpuerperal psychotic episodes and psychosocial outcome in the course of illness.
2. Defined gynecologic variables differentiate both groups.

Clinical Points

- Puerperal psychoses are the most severe mental disorders affecting woman after childbirth and cover a broad range of diagnostic categories. A relevant risk of suicide and infanticide has to be respected during and after the acute index episode.
- Puerperal psychosis of early onset has a strong link to bipolar affective disorder that becomes more pronounced in the long term.
- A major risk for further puerperal and, even more frequently, nonpuerperal psychotic relapses in the long term is highlighted.
- Prognosis and outcome are worse in patients with hospitalizations before the initial puerperal index episode than in patients with first-onset puerperal psychosis. Among the latter is a substantial subgroup that remains without any further psychotic relapse and shows an excellent outcome.

METHOD

Subjects

Over a 20-year period (1975–1995), 167 women experienced psychosis during the puerperal period (defined up to 9 months after childbirth) and were referred to the Psychiatric Department of the Ludwig Maximilian University of Munich, Munich, Germany. These patients were identified by the department's central register of admission. Women with exacerbation of a known schizophrenic disorder or any organic or psychotropic substance-related psychosis during the postpartum period were excluded. In our follow-up study, only those patients who presented with an early onset of psychotic manifestation within 4 weeks after delivery were included (Figure 1). This group comprised 123 patients, of whom 17 patients could not be tracked for follow-up due to an unknown place of residence. There were also 7 patients who refused to take part in the study, and 3 patients had died as a consequence of somatic illness conditions. Six patients had committed suicide shortly after discharge from the initial index hospital admission.[26] Thus, 90 patients took part in the follow-up study. Thirty-five patients had experienced a previous psychotic illness and hospital admission before they presented with their initial index puerperal psychosis episode. For 55 patients, the index episode was the first psychotic manifestation in the course of illness.

All patients were first addressed through a letter of invitation, and then personally contacted by telephone. After the patients had given their informed consent, they participated in the follow-up investigations at the outpatient clinic of the department.

Psychiatric Diagnosis at Initial Index Episode

For diagnostic assessment of the initial puerperal index episode, detailed hospital records and clinical diagnoses according to *ICD-9* were available. Psychopathology of index admission had been routinely recorded by the *Arbeitsgemeinschaft für Methodik und Dokumentation* (AMDP) system.[27] Before launching the follow-up study, *ICD-9* diagnoses of the initial puerperal index episodes were reclassified according to *DSM-IV-TR* criteria by 2 senior registrars. These diagnoses of puerperal psychosis were later rechecked by the Structured Clinical Interview for *DSM-IV* Axis I Disorders (SCID-I) at the time of follow-up.

Presence of dominant symptoms of delusion and hallucinations during the initial index phase defined the overarching criterion for enrollment. A diagnosis of major depression had to include mood-congruent psychotic symptoms. A diagnosis of bipolar affective disorder had to be either of the manic type or the mixed affective type, both types showing concurrent psychotic symptoms. A third diagnostic group comprised a psychopathological phenomenology best subsumed under the diagnostic concept of cycloid psychosis.[28–30] There were some conceptual difficulties in transforming this cycloid group directly into the diagnostic terminology of both *DSM-IV-TR* and *ICD-10*.[31] This cycloid psychosis concept came close to the diagnostic category of brief psychosis (*DSM-IV-TR*) on the one hand and of acute polymorph psychotic disorder (*ICD-10*) on the other.[32] For matters of uniform terminology, this group was coded as "brief psychosis with postpartum onset" in this article.

Psychiatric Diagnosis at Follow-Up Regarding Course of Illness

At the follow-up session, a structured clinical interview (SCID-I)[33,34] was performed to establish *DSM-IV-TR* diagnoses regarding the initial index diagnosis and for any other psychotic index and nonindex episodes during the follow-up period. All sections of the SCID-I were conducted by experienced clinicians who were well trained in the SCID.

Regarding the overall course of illness at follow-up, a change in the initial diagnosis resulted when the initial puerperal psychotic index episode was followed by other psychotic episodes that characterized the course of illness more precisely at follow-up. Other nonpsychotic *DSM-IV-TR* diagnoses were also assessed according to the SCID-I.

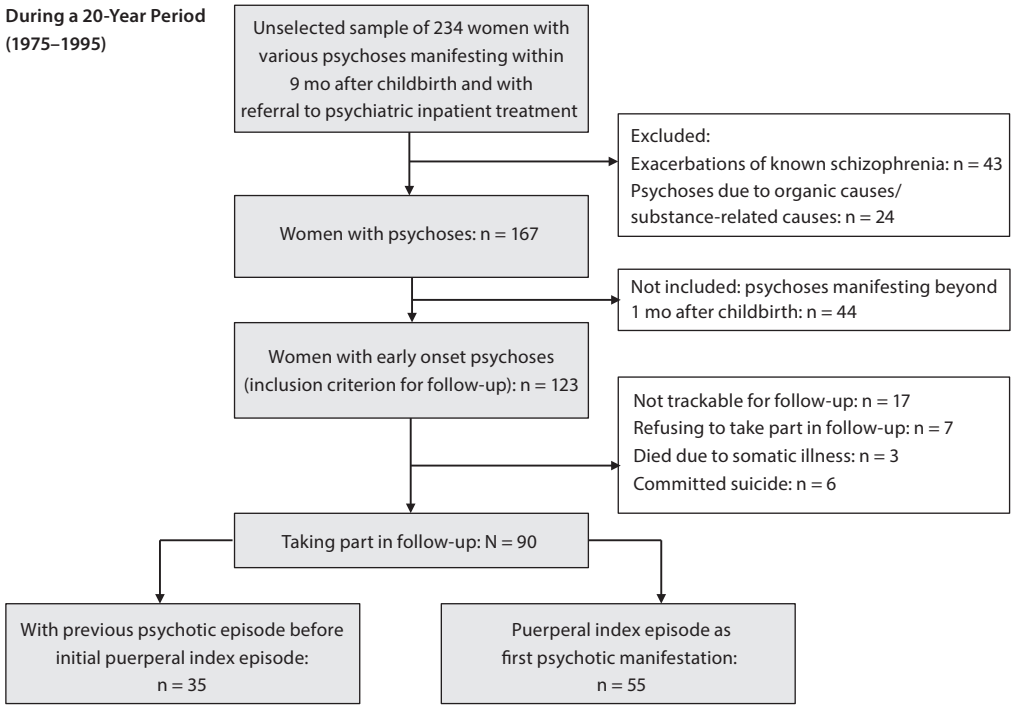
General and Specific Risks of Psychotic Relapses During the Follow-Up Period

The overall risk of a psychotic relapse was calculated regarding (1) any further psychotic recurrence at all, (2) any other puerperal psychotic episode after further pregnancies (number of psychotic index episodes divided by number of further pregnancies), and (3) at least 1 other nonpuerperal psychotic episode (ie, without any relation to other pregnancies and postpartum periods).

Gynecologic Variables Collected or Assessed at Follow-Up

In order to relate the course of psychiatric illness to a general gynecologic context, some variables were assessed by a semistructured interview.

Figure 1. Patients With Early Onset Puerperal Psychosis Included in the Follow-Up Study



1. Information on the occurrence rate, intensity, and time of manifestation of postpartum blues regarding the initial psychotic index episode was drawn from available systematic midwifery and consultation-liaison psychiatric notes.
2. Regarding any affective, cognitive, and somatic symptoms during menstrual cycles, all women were interviewed by using the items of the Menstrual Distress Questionnaire[35] as a screening instrument. An approximate estimation of the rate of clinically relevant premenstrual tension was made by the number of patients reporting a score of at least 4 in a minimum number of 3 Menstrual Distress Questionnaire symptoms for some months during the follow-up period. Premenstrual tension was considered extreme if patients rated their symptoms with the highest possible score of 6 or if they were affected by the symptoms with such intensity that some gynecologic consultation and intervention were required.
3. Patients were asked at follow-up whether they could remember any clinically relevant affective and/or cognitive psychiatric symptoms, especially psychotic symptoms that were triggered perimenstrually and that required some kind of psychiatric/gynecologic intervention during the follow-up period.
4. Psychological symptoms were assessed in a probable conditional relation to oral contraceptives that had been prescribed during the follow-up period.

Psychosocial Outcome Variables at Follow-Up

Level of overall severity of psychiatric disturbance was measured by the Global Assessment Scale (GAS).[36] The GAS scores range from 0 to 100; higher scores indicate a decreasing severity of psychological symptoms and/or a more favorable psychosocial adjustment. Psychosocial functioning was additionally assessed by the Mannheim Disability Assessment Scale (DAS-M).[37] The DAS-M covers the following areas: self-care, spare time activities, daily routines, social communication, behavior in emergencies, housekeeping activities, marriage and partnership, sexuality, parenting role, work role behavior, and general interests/ need of information. Overall psychosocial functioning/ disability can be estimated according to 5 levels from 0 = no disturbance to 4 = severe disturbances. In this article, a mean global score was calculated.

Statistics

Data analysis was applied to the group with a psychotic episode before the initial index episode versus the group with the initial puerperal psychosis as the first psychotic manifestation. Separate analyses regarding gynecologic and psychosocial outcome variables were then performed by differentiating patients presenting with the initial index episode as the first psychotic manifestation without further psychotic relapse and patients with the initial index episode as the first psychotic manifestation with further psychotic relapse. All statistical calculations were performed using SPSS 18.0 statistical package (SPSS, Chicago, Illinois). Relative frequencies of discrete variables were compared by Fisher exact test.

Table 1. Diagnostic Assessment of Initial Puerperal Psychotic Index Episode With an Early Onset Within 4 Weeks After Delivery[a]

Psychiatric Diagnosis (SCID-I)	Previous Psychotic Episode Before Initial Index Episode (n = 35)	Initial Index Episode as First Psychotic Manifestation (n = 55)
Major depression with psychotic features	11 (31.4)	24 (43.6)
Bipolar affective disorder manic episode with psychotic features	3 (8.6)	9 (16.4)
Brief psychosis (cycloid) with postpartum onset	21 (60.0)	22 (40.0)

[a]Values are presented as n (%).
Abbreviation: SCID-I = Structured Clinical Interview for *DSM-IV* Axis I Disorders.

Table 2. Diagnostic Assessment Regarding Overall Course of Illness at Follow-Up[a]

Psychiatric Diagnosis (SCID-I)	Initial Index Episode	Follow-Up
Previous psychotic episode before initial index episode (n = 35)		
Major depression	11 (31.4)	11 (31.4)
Bipolar affective disorder	3 (8.6)	3 (8.6)
Brief psychosis (cycloid)	21 (60.0)	12 (34.3)
Bipolar affective		7 (20.0)
Chronic schizophrenic		2 (5.7)
Initial index episode as first psychotic manifestation without psychotic relapse (n = 24)		
Major depression	12 (50.0)	12 (50.0)
Bipolar affective disorder	2 (8.3)	2 (8.3)
Brief psychosis (cycloid)	10 (41.7)	10 (41.7)
Initial index episode as first psychotic manifestation with psychotic relapse (n = 31)		
Major depression	12 (38.7)	12 (38.7)
Bipolar affective disorder	7 (22.6)	7 (22.6)
Brief psychosis (cycloid)	12 (38.7)	6 (19.4)
Bipolar affective		5 (16.1)
Chronic schizophrenic		1 (3.2)

[a]Values are presented as n (%).
Abbreviation: SCID-I = Structured Clinical Interview for *DSM-IV* Axis I Disorders.

Psychometric data of the GAS and DAS-M (global score) were compared by 1-factorial analysis of variance. Differences with a probability value of $P < .025$ (after Bonferroni correction) were considered statistically significant. Post-tests according to Scheffé were done for single comparisons of groups.

The study was approved by the ethics committee of the Medical Faculty of Ludwig Maximilian University of Munich in accordance with the ethical standards specified in the declaration of Helsinki.

RESULTS

At the time of the initial index episode, 69 patients in our sample had a state of primipara that was well balanced among the groups. The mean age of the whole sample at the puerperal psychotic index episode was 36 years (range, 19–45 years) and comprised both very young patients (< 24 years, n = 18) and patients of a higher age (> 38 years, n = 17), with no statistically significant differences among the groups. The civilian status of the sample group at the time of the index episode indicated that 85% were married, 10% were divorced, and 5% were single. At the time of follow-up, all patients were either married (89%) or lived in partnerships.

During the defined 4-week early postpartum period, 52% (n = 47) of the patients were in the first week at time of admission to the psychiatric hospital, 28% (n = 25) were in the second week, 7.8% (n = 7) were in the third week, and 12.2% (n = 11) were in the fourth week.

Diagnostic Assessment at the Initial Index Episode and at Follow-Up

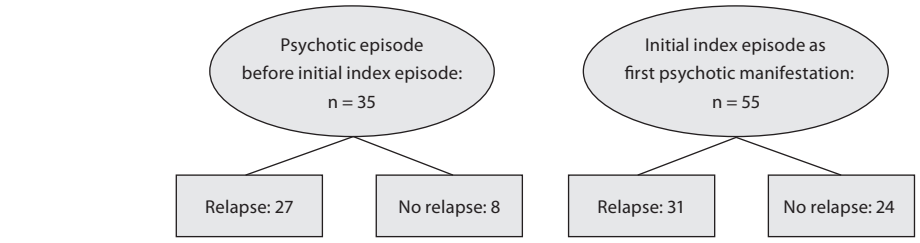
Psychotic major depression as the initial index episode occurred to a similar extent between the groups. As shown in Table 1, major depression as the index episode was diagnosed in 31.4% of patients with a psychotic episode before their initial index episode (n = 11) versus 43.6% (n = 24) of patients with the index episode as the first psychotic manifestation. Bipolar affective disorder was diagnosed in 8.6% (n = 3) versus 16.4% (n = 9), respectively. Patients with brief psychosis (cycloid psychosis) formed the numerically largest diagnostic category (60% [n = 21] vs 40% [n = 22]). These patients typically presented with grossly disorganized behavior; high peak-affective states; perplexity, stupor, and agitation; delusions of persecution, grandeur, or divine illumination with frequent delusional child-related themes; hallucinations, and often suicidal and sometimes infanticidal ideas. Clinical phenomenology was often characterized by pronounced diurnal fluctuations in the intensity of symptoms.

At follow-up, 3 major findings can be underscored (Table 2). First, a substantial number of patients with psychotic manifestation as the initial index episode remained without any further psychotic relapse during the course of illness (n = 24). Second, there was a persistent diagnostic stability in the diagnostic categories of major depression and bipolar affective disorder. Third, some major changes in diagnosis resulted in the category of brief psychosis (cycloid psychosis). In the group with a psychotic episode before the initial index episode and the group with the initial index episode as the first psychotic manifestation but with further psychotic relapse, a major shift toward the diagnostic category of bipolar affective disorder was noted (7/21 vs 5/12, respectively). A typical course of illness in these patients was characterized by the initial cycloid psychotic index episode being followed later on by distinct depressive and manic episodes that usually occurred without any association to further pregnancy and postpartum periods. At follow-up, 3 patients in this initial diagnostic category were rediagnosed with a chronic course of schizophrenia.

General and Specific Risks of Psychotic Relapses During the Follow-Up Period

In patients with a psychotic episode before the initial index episode and patients with the initial index episode as the first psychotic manifestation, the majority decided

Figure 2. General, Puerperal, and Nonpuerperal Psychotic Relapses During a Mean 12-Year Follow-Up Period After Initial Puerperal Psychotic Index Episode



No further pregnancies	15	6	14	18
Further pregnancies	19	2	23	6
Further index episodes	12		14	
At least 1 other nonindex episode	25		24	

against having further children after the experience of their initial puerperal index episode (21/35 vs 32/55, respectively; not significant; Figure 2). Rates of psychotic relapses in the further course were substantial (general risk = 0.77 vs 0.56, respectively; $P = .07$; not significant; Fisher exact test). The total number of further pregnancies in the patient group with a psychotic episode before the initial index episode was 21, followed by 12 further psychotic index episodes. Their specific risk of psychotic index relapse was 0.57. The total number of additional pregnancies in the patient group with the initial index episode as the first psychotic manifestation was 29, followed by 14 further psychotic index episodes. Their specific risk of psychotic index relapse was 0.48 (not significant). In this group, there was 1 patient who suffered from 3 subsequent psychotic episodes after 3 further pregnancies. Rates of nonpuerperal psychotic episodes were again substantial, underscoring a higher risk of relapse in the group who had a psychotic episode prior to the initial index episode compared to those who did not (0.71 vs 0.44, respectively; $P = .015$; Fisher exact test).

Regarding nonpsychotic comorbidities, the patients with a psychotic episode before the initial index episode and the patients with the initial index episode as the first psychotic manifestation with further psychotic relapse showed quite similar profiles. The lifetime prevalence rate for any anxiety disorder was 31% (n = 11) versus 29% (n = 9), for obsessive-compulsive disorder was 5.7% (n = 2) versus 3.2% (n = 1), for somatoform disorder was 20% (n = 7) versus 25.8% (n = 8), for alcohol abuse/dependence was 14.3% (n = 5) versus 16.1% (n = 5), and for benzodiazepine abuse/dependence was 20% (n = 7) versus 6.5% (n = 2). Patients from the group in which the initial index episode was the first psychotic manifestation without further psychotic relapse also showed more favorable nonpsychotic comorbidity rates. Although these patients had some minor psychological (depressive, anxious) symptoms at most, the symptoms never reached the threshold required for a proper diagnosis. There were 2 patients who fulfilled the diagnostic criteria of alcohol abuse and 3 patients who presented with dysthymia.

Gynecologic Context

Several gynecologic variables were assessed with respect to an assumed conditional link to a general hormonal susceptibility that might differentiate between the groups. Overall, no statistically significant differences could be detected (Table 3).

Detailed midwifery notes and consultation-liaison psychiatric reports were available for most patients regarding onset, quality, and intensity of postpartum blues during the initial puerperal psychotic index episode. In general, postpartum blues started more or less immediately after delivery without any "lucid interval" and had rapidly escalated in intensity. In 17 patients, florid psychosis started abruptly after they received dopaminergic agonists (eg, bromocriptine) for antilactational reasons.

In the whole patient sample during the follow-up period, there were substantial rates of premenstrual symptoms with at least a moderate intensity. Nineteen patients complained about extreme somatic symptoms of premenstrual tension that were accompanied by pronounced dysphoric-irritable and anxious-depressive symptoms. Three patients experienced distressing obsessive worries and compulsive symptoms for at least 4 to 6 recurrent menstrual cycles that finally required gynecologic consultation. Treatment with oral contraceptives was started and in 3 cases was combined with serotonergic antidepressants, which eventually led to a moderate improvement.

Nine patients reported major psychiatric symptoms that had been elicited perimenstrually during the follow-up period. These patients were evaluated retrospectively with the onset of psychotic episodes in 8 cases and as a symptomatically worsening dysthymia in 1 patient. The clinical picture in 6 patients was assessed as a mixed-affective state in the context of bipolar affective disorder, in 1 patient as an exacerbating cycloid psychosis, and in 1 patient as psychotic depression and stupor. Of 8 psychotic patients, 6 had been hospitalized because of these relapses. Two patients from the group with a psychotic episode prior to the initial index episode reported an onset of some periodically recurrent psychotic states (cycloid; melancholic

Table 3. Gynecologic Context During the 12-Year Follow-Up Period After Initial Puerperal Psychotic Index Episode[a,b]

Gynecologic Variable	Psychotic Episode Before Initial Index Episode (n = 35)	Initial Index Episode as First Psychotic Manifestation Without Psychotic Relapse (n = 24)	Initial Index Episode as First Psychotic Manifestation With Psychotic Relapse (n = 31)	*P*
Postpartum blues	17 (48.6)	17 (70.8)	12 (38.7)	.054
Severe intensity	13 (37.1)	6 (25.0)	8 (25.8)	.545
First–third postpartum day	12 (34.3)	11 (45.8)	11 (35.5)	.677
Premenstrual symptoms	23 (65.7)	17 (70.8)	19 (61.3)	.472
Severe intensity	6 (17.1)	3 (12.5)	9 (29.0)	.317
Major psychiatric symptoms triggered premenstrually	6 (17.1)	1 (4.2)	2 (6.5)	.263
Oral contraceptives	24 (68.6)	11 (45.8)	25 (80.6)	.568
Mood symptoms triggered	4 (11.4)	1 (4.2)	6 (19.4)	.258

[a]Values are presented as n (%).
[b]Fisher exact test.

Table 4. Psychosocial Outcome Measured by the Disability Assessment Scale (DAS-M) at Follow-Up[a]

DAS-M	Psychotic Episode Before Initial Index Episode (I: n = 35)	Initial Index Episode as First Psychotic Manifestation Without Psychotic Relapse (II: n = 24)	Initial Index Episode as First Psychotic Manifestation With Psychotic Relapse (III: n = 31)	Statistic
Level 0	18	22	15	$F_{2,87} = 6{,}01$[b]
Level 1	10	2	7	$P < .004$[c]
Level 2	3	…	7	
Level 3	2	…	2	
Level 4	2	…	…	
Global score, mean (SD)	0.86 (1.12)	0.08 (0.28)	0.87 (0.99)	
Posttests according to Scheffé				
I vs III				$P = .998$
II vs I				$P = .011$
II vs III				$P = .001$

[a]Levels of disability: 0 = no disturbance to 4 = severe disturbance.
[b]Analysis of variance.
[c]After Bonferroni correction.

depressive with mood-congruent acoustic hallucinations) that were related to the menstrual cycle when the patient entered puberty.

The overall use of oral contraceptives during the follow-up period was high. Eleven patients experienced distressing depressive-anxious symptoms while taking this hormonal medication, which resolved after the oral contraceptives were withdrawn.

Outcome Measures

In order to correctly assess the overall outcome of puerperal psychosis, one has to stress the high suicidal and infanticidal risk during the index episode. In our original sample, 6 patients committed suicide. Five of these women presented with the puerperal index episode as their first psychotic manifestation; only 1 woman had already experienced a psychotic episode before the puerperal index episode. Four patients were diagnosed with major depression with psychotic symptoms; 1 patient was diagnosed with bipolar affective disorder and 1 patient with a brief psychosis. All patients committed suicide between a few days to a few weeks after being discharged from the psychiatric hospital despite a pronounced or even seemingly complete remission at the time of discharge. As far as could be reconstructed from reports from the families, all women had been in a state of depression at the time of their suicide that was considered as totally unexpected in the eyes of their partners and relatives. One patient had committed an extended suicide with her baby. Two other patients committed an extended suicide attempt by intoxication during the postdischarge period. In 1 case, both the mother and baby could be rescued; however, in the other case, the mother could be rescued but the baby died (for more details see Kapfhammer and Lange[26]).

At the time of follow-up, the current mental state of the former patients with the initial index episode as the first psychotic manifestation without psychotic relapse (n = 24) was remitted and stable for several years. Only 2 patients remained on antidepressants. Patients who had a psychotic episode before the initial index episode (n = 35) and patients with the initial index episode as their first psychotic manifestation with psychotic relapse (n = 31) generally showed some current minor psychopathological symptoms. There were also some patients with major psychopathological symptoms in their current mental state in both patient groups (n = 7 vs n = 8, respectively). Most patients were still under psychopharmacologic treatment.

Except for the 3 patients who were diagnosed as "chronic schizophrenic," all other patients of the whole sample were without psychotic features at the time of follow-up.

Results of the GAS demonstrated statistically significant differences between the groups (mean [SD] = 55 [13.7] vs 65 [18.1]; $F_{1,88} = 7.794$; $P = .024$) (GAS: I = psychotic episode before initial index episode: 55.0 [13.7]; II = initial index episode as the first psychotic manifestation without psychotic relapse: 77.7 [13.0]; III = initial index episode as the first psychotic manifestation with psychotic relapse: 55.2 [15.3]; $F_{2,87} = 22.7$; $P < .001$ after Bonferroni correction). The very favorable psychosocial outcome of group II was underscored by statistically significant differences both to group I and group III (posttests according to Scheffé: II vs I: $P < .001$; II vs III: $P < .001$). These data on global outcome were correspondingly confirmed by the results in the DAS-M (Table 4).

DISCUSSION

Diagnostic State of Puerperal Psychosis

The issue of diagnostic heterogeneity of puerperal psychosis is still controversial. This controversy may arise on the one hand from the variable time of onset from delivery that ranges from a few weeks to several months, and on the other hand from not strictly referring to psychotic states.[38,39] A critical overview of the clinical studies to date indicates that puerperal psychoses with an early onset (ie, during the first few weeks after childbirth) underscores a strong link to affective psychoses, especially bipolar affective disorder.[38,39] Most recent epidemiologic, prospective clinical and prevention studies seem to confirm the outstanding relevance of this focus on bipolar affective disorder.[5,7,8,24,40,41] The often unusual presentation of psychotic features in patients with puerperal psychosis, however, hints to a broader diagnostic range during the index episode as outlined in previous studies.[42–45] We confirmed this view with 3 major diagnostic categories: major depression and mania with psychotic features each on the one hand, and brief psychosis with postpartum onset on the other. Several follow-up studies discuss the issue that these varying psychotic states during the index postpartum period might eventually turn out to be presentations of underlying bipolar spectrum disorders.[12,45–48] From the perspective of the course of the illness, this previous finding definitely did not apply to our patients with unipolar major depression with psychotic features. Our finding was in contrast to the supposition of a diagnosis of bipolar II postpartum depression.[49]

Clinically, the most impressive form of puerperal psychosis is brief psychosis that may be best circumscribed by the former diagnostic concept of cycloid psychosis.[42,45,50,51] In our sample, brief psychosis was the most frequent diagnostic category during the initial puerperal index episode. This finding seems to be in contrast to the frequencies of diagnostic categories in most recent studies on this matter.[24,41] One may reflect whether a preponderant diagnostic focus might have coded some of the cycloid forms under the category of bipolar affective disorder with mood-incongruent psychotic symptoms. From a perspective of the course of the illness, one has to appreciate that a substantial number, but by no means all of these patients in our sample, shifted to a clearer bipolar affective course in the long term. At least for these patients, the psychobiological puerperal context seemed to play a major pathoplastic role regarding the prevailing clinical picture during the index episode.[38]

Risk of Relapse

Various follow-up studies have underlined the high risk of further psychotic relapses after further pregnancies, as well as relapses being more pronounced during nonindex periods.[11,12,24,41,48,51–53] The risks observed in our study were well within the ranges reported in these previous studies.

The majority of patients decided against another pregnancy after the initial puerperal index episode, which had been experienced as highly traumatic. The separation from their babies and being admitted to a psychiatric hospital, in many cases to a closed ward under dramatic circumstances due to the florid psychosis, became a central and often long-lasting psychological issue in the coping period following the episode for both the affected women and their close family members. Nonetheless, some patients in our sample became pregnant again and remained without any further psychotic episodes.

Gynecologic Context

We assessed various gynecologic variables according to a theoretical assumption that a basic hormonal dysregulation of the female reproductive cycle is the etiopathogenesis of puerperal psychosis.[38,39] Our hypothesis suggested that some selected gynecologic variables may contribute to the differences among the groups. However, we found no statistically significant differences.

In most cases, the onset of puerperal psychosis is abrupt, usually without a "lucid interval."[1] Early signs of euphoria shortly after delivery were found to predict bipolar affective disorder.[54] The available consultation-liaison psychiatric and midwifery notes indicated that a substantial number of our patients already developed extreme postpartum blues during the first days after delivery. From a retrospective perspective, these blues were more likely considered as prodromal symptoms of a menacing psychosis.[55] Onset of florid psychosis after administering dopaminergic drugs in order to stop lactation was observed in 17 patients. This finding may possibly confirm the neurobiological hypothesis of a hypersensitive dopaminergic neurotransmitter system in some predisposed women after delivery.[17,56]

There seems to be a lack of negative association between hormonal contraception and mental health in the general literature.[57] In addition to having no control group, we used a retrospective design at follow-up. Therefore, only on a level of clinical care should a possible hormonal susceptibility of the female reproductive cycle in some patients be considered; this is indicated both by depressive/anxious symptoms under treatment of oral contraceptives and by a high coexistence of at least moderate premenstrual distress. In some women,

premenstrual distress was extreme and sometimes persisted for a long time during the follow-up period. Among these women, there were several cases of psychotic symptoms that were occasionally triggered perimenstrually. In addition, 2 of the patients reported the occurrence of periodic psychotic states when entering puberty. Both menstrual psychosis and periodic psychosis in puberty are very rare.[58–61] Brockington et al[62] described an early relapse shortly before the first menstrual period after delivery in some patients who had suffered from puerperal psychosis and had rapidly recovered. Some repeated premenstrual relapses occurred also in the later course of illness. Wieck et al[63] detected an increased sensitivity of dopamine receptors in these instances. Women with bipolar affective disorder who show signs of premenstrual exacerbation may form a subgroup that has a worse course of illness.[64,65] Any possible pathogenetic link to exacerbated psychiatric symptoms during the menstrual cycle or to a vulnerability of puerperal psychosis, however, still awaits more intensive scientific investigation.[66]

General Psychosocial Outcome

On the one hand, a high suicidal and infanticidal risk during and shortly after the acute puerperal index episode must be stressed as an issue of great clinical relevance.[26] On the other hand, a substantial subgroup remained without any further psychotic relapse during the follow-up period. Besides some occasional minor affective symptoms, rare alcohol abuse, and some gynecologic problems, these women had to be considered as fully remitted at follow-up. A favorable clinical and psychosocial outcome in a subgroup of women with a former puerperal psychosis has also been described in previous studies.[9,38,39] We found that the general global and psychosocial outcome was better in the patient group with the initial index episode as the first psychotic manifestation than in the group with a psychotic episode before the initial index episode, a finding that is in accordance with several other follow-up studies.[12,51–53] From a clinical point of view, however, at follow-up, some patients in both groups were seriously handicapped in psychopathological and psychosocial terms.

Limitations of the Study

The follow-up sample recruited patients from 1975 to 1995. The retrospective design is likely to be associated with some problems in correctly remembering all of the data assessed or reevaluated at the time of follow-up. Although comprehensive clinical case notes, AMDP documentation system for psychopathology in all patients, and detailed consultation-liaison psychiatric and midwifery information were available for most patients at the time of the index admission, some items reassessed at follow-up might have been influenced by several intervening events, for example, further pregnancies and subsequent puerperal and nonpuerperal index episodes. A probable recall bias had to be respected, especially regarding various gynecologic variables such as premenstrual distress symptoms. Without any control group, only a cautious interpretation of these data is permissible, and any clinical relevance has to be considered for the individual patient only.

Drug names: bromocriptine (Parlodel, Cycloset, and others).
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