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Article

Post-partum maternity 'blues' as a reflection of newborn nursing care in Japan

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Abstract

Objectives: To investigate the prevalence of post-partum 'blues' in mothers whose babies are cared for in a newborn nursery, compared with mothers providing rooming-in care. *Methods:* Japanese normal primiparous women were prospectively studied from 1998 to 1999. The newborns of these mothers were managed in the newborn nursery or by rooming-in care. To diagnose maternity 'blues' and 'depression', the Stein's Questionnaire and the Edinburgh Postnatal Depression Scale were used. *Results:* Ninety-seven and 93 women were managed by newborn nursery care and by rooming-in care, respectively. Of these women, a total of 181 women were considered for analysis. 'Blues' was noted in 31 of 92 mothers (33.7%) receiving newborn nursery care and in 18 of 89 (20.2%) receiving rooming-in care with a significant difference ($P<0.05$), and in 49 of 181 (27.1%) as a whole. The daily Stein's scores changed significantly during the 10 days post-partum in each group ($P<0.0001$). Post-partum 'depression' was observed in three mothers (3.4%) in the newborn nursery care group and in four (4.8%) of the rooming-in care group, not a significant difference, and in seven (4.1%) as a whole. *Conclusion:* Maternity 'blues' is experienced by 25% or more of Japanese primiparous women delivering healthy babies via uncomplicated delivery. The system of newborn nursery infant care may be a potential causal factor for maternity 'blues', although it should be confirmed by a prospective randomized trial.

Keywords: Newborn nursery infant care; Maternity 'blues'

1. Introduction

Post-partum maternity 'blues' is defined as transient depressed mood experienced shortly after delivery. The mood disorder is manifested by mood lability, increased sensitivity, fatigue, poor concentration, loneliness, and despondency. The onset of the condition is usually within 1–5 days after delivery, and the symptoms typically last from 2–3 days and usually resolve within 10 days. Maternity 'blues' is reported to be documented in 50~80% of puerperal women and is a high-risk condition for post-partum 'depression' in European countries [1,2]. In Japan, the prevalence of maternity 'blues' is believed to be relatively low, although sufficient information is not yet available.

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Concerning the hospital care of the newborn infant, rooming-in care, common or standard at present in Europe and USA, represents an environment wherein an infant rooms with the mother and is cared for by herself during the hospital stay of one or a few days after delivery [3]. In this method, proper mother–baby bonding and relationship are facilitated because all phases of infant-bearing are encouraged to be as natural as possible in the early post-partum period [4–6]. However, in Japan, non-rooming-in care, that is, newborn nursery care of infant is still widely utilized. This neonatal care program provides a special environment wherein a newborn infant, even if it is healthy, is kept in a separate newborn nursery, in a crib set up for the exclusive use of the infant, and care, except for breast-feeding, is provided by medical personnel for the most part during the post-partum hospital stay of 1 week. Historically, the neonatal care system was introduced under the guidance of the United States Government after the end of World War II in order to protect newborn infants against postnatal infection. This resulted in markedly improved neonatal and also maternal mortality and morbidity in Japan. However, the care method isolating an infant from the mother appears to have produced an unnatural environment that might lead a mother to feel loneliness, as well as anxiety over her capabilities for baby care after discharge. Under this system there is almost no time for mother–baby interaction except for breast-feeding.

Therefore, the aim of the prospective observational study is to investigate the prevalence and outcome of 'blues' in first-time mothers who are managed with newborn nursery care, compared with those utilizing rooming-in care.

2. Materials and methods

The study was performed between July 1998 and July 1999, in three private clinics. Japanese primiparous women who delivered healthy term infants vaginally in vertex presentation following uncomplicated pregnancy, and who were expected to have an uneventful course of the puerperium, were enrolled in the prospective observational study, after obtaining their full informed consent. These mothers were managed with the newborn nursery care technique during the first half (July to December 1997) of study period, and by rooming-in care during the latter half (January 1997 to July 1998). In the newborn nursery care practice, a newborn infant was placed in a crib set up in the nursery room and cared for almost exclusively by medical personnel, while the mother spent her time in the recovery room except for breast-feeding time in the feeding-room. In practicing the rooming-in care, a newborn infant was placed in a crib at the bedside of the mother in the recovery room and cared for by herself. The mother was educated and assisted for infant care by full-time nurse staff, during a typical hospital stay of 1 week post-partum. In both care practices, the mother, if necessary, was supported emotionally by medical staff.

To diagnose maternity 'blues', a Japanese version [7] of Stein's Questionnaire [8] was used, because it has been established as an accurate tool to detect 'blues'. The Stein's self-rating scale was given to each mother on the evening of day 1–6 post-partum. She was instructed to complete the 13 question items regarding her symptoms. Each mother was also handed a Stein's scale at the time of discharge and requested to complete it on day 10 post-partum and return it by mail. The sum of the scores for all the symptoms provided the daily score, and a score of 8 or more usually signified a significant depressed mood, diagnosed as 'blues' [8]. In addition, to examine whether or not mothers with 'blues' are at risk of developing post-partum 'depression', a Japanese version [7] of the Edinburgh Postnatal Depression Scale (EPDS) [9] was applied to the study population because it is the most widely accepted scale. The EPDS scale was given to each mother at the time of the 1-month post-partum hospital visit. All were asked to answer the 10 short questions regarding their feelings during the previous 7 days. A total score of 13 or more for all the feelings indicates that the person is likely to be suffering from a depressive illness of varying severity, diagnosed as 'depression' [9].

Intra-group analyses were performed with the Friedman test. Between-groups analyses were performed with the χ^2 test or Fisher's exact test, and

Table 1
Clinical characteristics of the women studied

Items	Newborn nursery care group ($n=92$)	Rooming-in care group ($n=89$)	P-value[c]
No. of women managed in each of three clinics: S/M/K[a]	27/32/33	25/33/31	0.95
Mean age ± S.D. (years)	27.7 ± 4.9	26.3 ± 4.2	0.04
Education: junior high school/high school/university	8/56/28	7/53212	0.68
Employment status: working/homemaker	27/65	22/67	0.48
Marital status: yes/no	87/5	86/3	0.50
History of mental or mood disorders: yes/no	5/90	7/85	0.36
History of abortion: yes/no	16/76	19/70	0.50
Delivery: Spontaneous/vacuum extraction	73/19	68/21	0.51
Bleeding; $<300/300\sim500/>500$ (g)	37/44/11	35/46/8	0.77
Infant gender; male/female	43/49	45/44	0.61
Infant weight; SGA/AGA/LGA[b]	3/89/1	2/87/0	0.57

[a] Initial names of three private clinics.
[b] Small/appropriate/large for gestational age.
[c] χ^2 test or Fisher's exact test, and Student's t-test.

Student's t-test. $P<0.05$ was considered statistically significant.

3. Results

During the study period, 97 primiparous women were managed with newborn nursery care, and 93 with rooming-in care method. Of these women, nine were excluded because of significant post-partum maternal and/or neonatal complications, and/or incomplete response to the Stein's self-rating scale. Thus, a total of 181 women were considered in study analysis and their characteristics are shown in Table 1. Histories of minor mood disorders were recorded in five women in the newborn nursery care group and in seven in the rooming-in care group. There were no significant differences for these clinical items except mean age between both groups.

The mean length of post-partum hospital stay was 6.73 ± 0.63 days in newborn nursery care group and 6.87 ± 0.58 days in rooming-in care group with no significant difference (Student's t-test, $P>0.1$).

Symptoms of 'blues' were more or less experienced by most mothers during the 1 week after delivery, with daily Stein's scores ranging from 0 to 16. 'Blues', defined with a cut-off score of 8 or more on one or more days, was noted in 31 of 92 mothers (33.7%) receiving newborn nursery care and in 18 of 89 (20.2%) receiving rooming-in care, with a significant difference between the groups (χ^2-test, $P<0.05$). Forty-nine of 181 (27.1%) in the combined groups experienced 'blues'. The trimmed mean scores rose from 4.6 on day 1 post-partum to 5.7 on day 2, fell to 4.3 on day 5, rose again to 4.8 on day 6, and fell again to 3.6 on day 10 in the newborn nursery care group (Friedman test, $P<0.0001$), while those rose from 4.4 on day 1 to 4.7 on day 2 and thereafter fell gradually to 3.2 on day 10 in rooming-in care group (Friedman test, $P<0.0001$) (Table 2). Concerning feeding status at the time of discharge, the rate of bottle-feeding was higher in the newborn nursery care group (11 of 92 mothers, 12.0%) than in rooming-in care (five of 89 mothers, 5.6%), although the difference was not significant (Fisher's exact test, $P=0.1$).

EPDS scores on day 30 post-partum were available in 88 of 92 mothers after newborn nursery care management and in 84 of 89 after rooming-in care management, and the scores obtained ranged from 0 to 17. 'Depression' diagnosed with EPDS score above a threshold 13 was observed in

Table 2
Daily changes of mean Stein's scores for post-partum maternity 'blues'

Day post-partum	Newborn nursery care group ($n=92$)		Rooming-in care group ($n=89$)		*P*-values	
1	4.6 ± 1.5[a]	4 (4.3)[b]	4.4 ± 2.0[a′]	6 (6.7%)[b′]	0.832[c]	0.353[d]
2	5.7 ± 1.9	11 (12.0%)	4.7 ± 1.9	4 (4.5%)	0.001	0.059
3	5.7 ± 2.5	18 (19.6%)	4.5 ± 2.1	9 (10.1%)	0.001	0.074
4	5.0 ± 2.6	12 (13.0%)	4.2 ± 1.9	7 (7.9%)	0.020	0.256
5	4.3 ± 2.1	8 (8.7%)	3.8 ± 1.8	7 (7.9%)	0.068	0.839
6	4.7 ± 2.2	9 (9.8%)	3.5 ± 2.0	4 (4.5%)	0.0002	0.138
10	3.6 ± 1.7	3 (3.3%)	3.2 ± 1.9	2 (2.2%)	0.137	0.677

[a] and [a′]: Mean Stein's score (mean $\pm$ S.D.). Daily fluctuations of these mean scores during the 10 days are significant with $P<0.0001$ by the Friedman test.
[b] and [b′]: Number and rate (in parenthesis) of mothers scoring 8 or more.
[c] (a vs. a′): Student's *t*-test.
[d] (b vs. b′): χ^2 test or Fisher's exact test.

three mothers (3.4%) in the former group and 4 (4.8%) in the latter with no significant difference between the groups (Fisher's exact test, $P=0.5$). Seven of 172 (4.1%) in the combined groups experienced 'depression'. Of these seven mothers, four belonged to the 49 (8.2%) who had suffered from 'blues', but three belonged to 132 (2.3%) who had not suffered 'blues', with no significant difference (Fisher's exact test, $P=0.09$).

4. Discussion

The three main findings of this observational study were as follows. (1) 'Blues' according to Stein's diagnostic criteria was documented in 33.7% of mothers receiving newborn nursery care and in 20.2% of mothers receiving rooming-in care, a significant difference, and in 27.2% in both groups combined. (2) The daily Stein's scores changed significantly during 10 days post-partum in each group ($P<0.0001$). (3) Post-partum 'depression' according to EPDS diagnostic criteria was observed in 3.4% of mothers after newborn nursery care management and in 4.8% of mothers after rooming-in care, not a significant difference, and in 4.1% in both groups combined.

First of all, the incidence rate of maternity 'blues' observed in our study, 27.2% in both groups, was relatively low in comparison with those in the recent foreign studies, reporting 45–75% [10–12], although it was almost comparable with that in the study by the same scale in Japan [7]. One plausible explanation of this low prevalence, was that we recruited primiparous women, without obstetric complications, who delivered healthy infants. A few early studies reported that primiparous women were at a decreased risk for 'blues' [13], while other studies suggested that they were at increased risk [14,15]. Harris et al. [11] observed the high frequency of 67%, applying Stein's scale to uncomplicated primiparous women. Racial, genetic or religious factors could be associated with manifestation of maternity 'blues', although the disease is reported to be as frequent among women in central America and south Africa as among those in the United Kingdom and USA [1]. The lack of common or standardized instruments for detecting and measuring maternity 'blues' appears to be the most basic issue to be solved.

Etiology of maternity 'blues' is unknown. Psychological, social, obstetric, and biological factors have been discussed with respect to its origin [1]. The findings of different investigators are largely inconsistent when reporting the association of psychological and social determinants and maternity 'blues'. No distinct associations are found either among obstetric, biological and hormonal factors and maternity 'blues', although these determinants appear to be more prominent in the development of the mood disorder [11,12]. We recruited Japanese primiparous women with no obstetrical complications in order to focus our study on examining

a possible difference in mental or mood changes between the maternal groups managed by two different methods of care of newborn infants. No significant differences were found in the clinical characteristics or background of the women in both study groups. Thus, maternity 'blues', diagnosed by Stein's scale, was significantly more frequent in the maternal group receiving newborn nursery care than in the group receiving rooming-in care. The emotional letdown following the fears and excitement of pregnancy and delivery is postulated to influence to some extent the mood or mental fluctuations of the parturient during the early post-partum period [1,16]. The mothers who are alone in the obstetric recovery room are suspected to be more vulnerable to such influences than those who spend their time along with their baby in the same room. The mothers receiving newborn nursery care may be more susceptible to maternity 'blues' as the mildest end of the spectrum of post-partum mood disorders, as compared with those receiving rooming-in care.

In the newborn nursery care group, the mean Stein's score on the day of discharge (day 6 post-partum) was significantly higher than that on the day before (day 5). The finding was in a contrast to that in the rooming-in care group in which the mean daily Stein's scores fell almost linearly until the day of discharge. The mothers receiving newborn nursery care management may be anxious about their ability to care for the baby just before leaving the hospital, since one of disadvantages in newborn nursery care practice is the mother's inability to assume full care of the baby when she arrives home [6]. Thus, the anxiety and its associated psychological factors appear to elevate the Stein's score on the day of discharge.

The incidence rate of post-partum 'depression' diagnosed with EPDS score in our study, 4.1% as a whole, was also considerably lower than the 10–20% reported in European countries [17,18]. The reason for this low incidence is unknown at present like that in post-partum maternity 'blues'.

In Japan, it has been debated for the last one or two decades as to whether or not a rooming-in care of infant should be encouraged to create an environment to allow more natural physical and emotional bonding between mother and baby. Post-partum maternity 'blues' and 'depression', which are parts of the spectrum of psychiatric disorders associated with gestation, are not yet widely recognized in our country. Our present study provides informative, reliable evidence that the problem exists in Japan, and should stimulate more study of this clinically important problem.

In conclusion, maternity 'blues' is experienced by 25% or more of Japanese primiparous women delivering healthy babies via uncomplicated delivery. The practice, still widely utilized in Japan, of giving newborn care in the newborn nursery, may be a potential causal factor for maternity 'blues'. This should be demonstrated by a prospective randomized trial in the near future.

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