



Brief communication

Home management of preterm premature rupture of membranes[☆]

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1. Introduction

Preterm premature rupture of the membranes (PPROM) is defined as rupture of the fetal membranes prior to 37 weeks of gestation and before the onset of labor. It occurs in 1–2% of all pregnancies and is associated with both maternal and fetal/neonatal complications [1,2].

In the absence of overt intrauterine infection, advanced labor, or fetal compromise, the patient with PPROM is managed expectantly in the hospital for the duration of the pregnancy and consists of antibiotics, steroids, initial continuous fetal monitoring followed by antenatal testing, and possibly short-term tocolysis [3].

In 1993, Carlan et al. [4] published a study of 55 patients with PPROM who were randomized to

either home or hospital management, and compared the maternal/neonatal outcomes and hospital costs. There was a statistically significant decrease in the number of maternal hospital days and hospital costs in the home management group, and no significant difference in perinatal outcomes between the two groups.

2. Procedure

The objective of this study was to determine the maternal and neonatal outcomes in the patients with PPROM who were managed at home under the integrative home-management program at the University of Michigan.

After receiving IRB approval, the hospital charts of the patients and their neonates, who were managed at home with PPROM at 24–34 weeks of gestation from October 1999 to October 2000, were reviewed for maternal and neonatal outcomes. The hospital records of the patients and their neonates, who met the criteria for home management but were managed in the hospital from October 1998 to October 1999, were reviewed for the same outcomes and served as historical matched controls.

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3. Results

The criteria for home management of PPRM are the following: (1) cephalic presentation; (2) clear amniotic fluid; (3) $AFI > 3$ cm; (4) oral temperature < 38 °C; (5) availability of 911 response in < 30 min; (6) distance from the hospital < 50 miles; and (7) home environment safe and amenable to rest.

The data were analyzed using χ^2 - and Fisher exact test for the dichotomous categorical variables, and the Student *t*-test and the Wilcoxon rank sum test for the continuous variables. A *P*-value < 0.05 was considered statistically significant.

There were 10 patients in the home-managed group and eight in the hospital managed group. There were no significant differences in the maternal clinical characteristics between the two groups (Table 1). There was a statistically significant decrease in the total maternal hospital days of the home-managed group compared to the hospital-managed group (Table 2). There were no significant differences in neonatal outcomes between the two groups (Table 3).

An added benefit is a decrease in hospital cost with home-management of PPRM. With the average hospital cost per day at the University of Michigan Hospital for inpatient care of PPRM of US\$4395, this would represent cost savings of approximately US\$57 000, on average, for those patients managed at home.

Umbilical cord prolapse and placenta abruption are serious complications of PPRM that require rapid intervention such that limited advantage is gained with the patient in a ward distant from the labor and delivery suite. However, these emergent complications are not predictable and occur uncommonly in carefully selected patients. In our study, neither of these complications occurred in the study groups.

Delivery outside the hospital is a potential risk with home-management of PPRM. To reduce that risk, the home-care registered nurse instructs the patient on the signs and symptoms of labor during their initial hospitalization. Furthermore, the patient must live within 50 miles from the hospital and live in an area with < 30 min 911 response

Table 1
Maternal clinical characteristics

	Home (<i>n</i> = 10)	Hosp. (<i>n</i> = 8)	<i>P</i> - value
Age (years)	24.6 ± 5.8	25.4 ± 6.3	NS
Parity > 1	5 (50%)	2 (25%)	NS
G.A. at PPRM (weeks)	30.0 ± 2.3	30.1 ± 2.5	NS
<i>AFI</i> (cm)	10.4 ± 4.6	9.9 ± 4.2	NS

NS = not significant, G.A. = gestational age, PPRM = pre-term premature rupture of membranes, and *AFI* = amniotic fluid index.

Table 2
Comparison of maternal outcomes

	Home (<i>n</i> = 10)	Hosp. (<i>n</i> = 8)	<i>P</i> - value
Latency (days)	26.5 ± 27.1	21.1 ± 17.5	NS
G.A. at del. (weeks)	33.8 ± 3.2	33.1 ± 0.6	NS
Chorioamnionitis (no.)	1 (10%)	2 (25%)	NS
Endometritis (no.)	0	0	–
C. section (no.)	2 (20%)	0	NS
Death (no.)	0	0	–
No. hosp. days	9.4 ± 6.6	22.3 ± 17.3	0.008

G.A. = gestational age, and del. = delivery.

Table 3
Comparison of neonatal outcomes

	Home (<i>n</i> = 10)	Hospital (<i>n</i> = 8)	<i>P</i>
Weight (g)	2233.5 ± 771.2	2106.9 ± 437.5	NS
APGAR < 7 at 5 min	0	1 (12.5%)	NS
PH. ART	7.29 ± 0.05	7.29 ± 0.06	NS
NICU (no.)	9 (90%)	8 (100%)	NS
Days in NICU	15.8 ± 16.3	11.75 ± 8.5	NS
RDS (no.)	1 (10%)	3 (37.5%)	NS
IVH (no.)	1 (10%)	0	NS
SEPSIS (no.)	0	0	–
Death (no.)	0	0	–

NS = not significant; PH-ART = arterial pH; NICU = neonatal intensive care unit; RDS = respiratory distress syndrome; and IVH = intraventricular hemorrhage.

time. None of the home-managed patients delivered outside the hospital.

4. Conclusion

The data in our study suggest that home-management of carefully selected patients with

PPROM is an option that has comparable maternal and neonatal outcomes to the traditional hospital management. Also, there was a significant decrease in the total number of maternal hospital days in the home-managed group.

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