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Original Research - Quantitative

Factors contributing to postpartum blood-loss in low-risk mothers through expectant management in Japanese birth centres

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ABSTRACT

Objective: To describe aspects of expectant midwifery care for low-risk women conducted in midwifery-managed birth centres during the first two critical hours after delivery and to compare differences between midwifery care, client factors and postpartum blood loss volume.

Method: As a secondary analysis from a larger study, this descriptive retrospective study examined data from birth records of 4051 women who birthed from 2001 to 2006 at nine (21%) of the 43 midwifery centres in Tokyo. Nonparametric and parametric analyses identified factors related to increased blood loss. Interviews to establish sequence of midwifery care were conducted.

Findings: The midwifery centres provided care based on expectant management principles from birth to after expulsion of the placenta. Approximately 63.3% of women were within the normal limits of blood loss volume under 500 g. A minority of women (12.9%) experienced blood loss between 500 and 800 g and 4% had blood loss exceeding 1000 g. Blood loss volume tended to increase with infant birth weight and duration of delivery. The total blood loss volume was significantly higher for primiparas than for multiparas during the critical two hours after delivery and for immediately after delivery, yet blood loss volume was significantly higher for multiparas than for primiparas during the first hour after delivery. Preventive uterine massage and umbilical cord clamping after placenta expulsion resulted in statistically significant less blood loss. Identified were two patterns of midwifery care based on expectant management principles from birth to after expulsion of the placenta. The practice of expectant management was not a significant factor for increased postpartum blood loss.

Conclusion: These results detail specific midwifery practices and highlight the clinical significance of expectant management with low risk pregnant women experiencing a normal delivery.

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Statement of significance

Problem

Postpartum blood loss is a major cause of death.

What is already known

Abnormal bleeding is defined as 500 g or more within 24 h, and the high-risk period for blood loss volume is within the first two hours after delivery.

What this paper adds

Under expectant management for low-risk women, 13% of women experienced blood loss between 500 and 800 g and 4% had blood loss exceeding 1000 g. Blood loss volume was significantly higher for multiparas than for primiparas during the first hour after delivery. Uterine massage and cord cutting after placenta delivery were associated with decreasing blood loss.

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1. Introduction

Postpartum haemorrhage continues to be a global concern.¹ Research indicates that 5% of women in resource rich countries experience postpartum haemorrhage of 1000 ml or more,^{1,2} accentuating the point that intrapartum haemorrhage is an important and common world-wide issue even in industrialized countries. Calvert and colleagues' systematic review with meta-analysis³ found that the prevalence of severe PPH (blood loss \geq 1000 ml) was highest in Africa at 5.1% and lowest in Asia at 1.9%. Yet in Japan, a major industrialized country in Asia, the prevalence of postpartum haemorrhage varies between 2 and 5% and is a major cause of death.⁴ This is striking when compared to the admirable advances of Hong Kong and Singapore where postpartum haemorrhage is no longer a leading cause of maternal death.⁵ Imaizumi et al.'s longitudinal epidemiological study⁶ within Japan revealed that postpartum haemorrhage varied by geographical area, urban-rural status and mothers' age. Postpartum haemorrhage rates were lower in urban hospitals.

To provide some consistency for evaluating postpartum bleeding the Japan Society of Obstetrics and Gynecology, following the WHO standard, defines vaginal blood loss of 500 ml or more within the first 24 h after birth as primary postpartum haemorrhage (PPH)⁷ and it recently defined abnormal bleeding as 800 ml in the first 24 h.⁴ While blood loss is reported for the 24-h period midwives are particularly concerned about blood loss volume during the high-risk period of the first two hours when the mother's coagulation and fibrinolytic mechanisms rapidly return to normal.⁸ Therefore midwifery management practices during this timeframe are key to preventing PPH.

Management of third stage labour is paramount in controlling postpartum bleeding.¹ Midwives have several different approaches to managing third stage labour. Definitions of the approaches vary by setting.⁹ For the purposes of this paper one approach is termed active management of third stage labour and is found to minimize PPH by using uterotonics, early cord clamping often before pulsation ceases and gentle cord-traction.¹⁰

The second approach, which is the focus of this study, is termed physiological or expectant management, often practiced by midwives in the USA, UK, Ireland Northern European countries, Japan and some developing countries.⁹ Expectant management involves such practices as waiting until the cord ceases pulsating before clamping, allowing the placenta to deliver on its own accord often added by gravity and using nipple stimulation from infant's suckling and fundal massage instead of uterotonics to stimulate the uterine contractions to control bleeding.¹¹ A focus group of 32 midwives from various hospital settings in Sweden identified three important factors for expectant management: (1) 'bring the process under control', (2) 'protect normality and women's birthing experiences' and (3) 'maintain midwives' autonomy'. However the researchers found that midwives expectant management practices varied.¹² Another facet of expectant management is the attention paid to mother-infant bonding through early skin-to-skin contact, which may decrease the length of third-stage labour.¹³ Kataoka et al.¹⁴ conducted a study of maternal and infant outcomes from low-risk women delivering at midwifery birth centres and midwifery-conducted home-births in Japan. They found midwives encouraged mothers to assume the labouring positions they wanted, had low rates of perineal trauma and episiotomies and 99% of mothers began nursing. Based on the principle that childbirth is a natural process and within the constraints of their scope of practice, Japanese midwives have fused the tradition of expectant management and 'natural birth', with evidenced based midwifery.¹⁵

In Japan the Public Health Nurses, Midwives and Nurses law guarantees that midwives can professionally and autonomously

provide care for pregnant women and that childbirth that can be legally managed by midwives limited to low-risk pregnancies, deliveries and the postpartum period that progresses without problems.¹⁶ In 2012 midwives practiced as independent midwives in homes (0.2%), midwifery run birth centres (0.9%) and in collaboration with physicians at clinics (47%) and hospitals (52%). About 2% of women chose midwifery managed childbirth centres or homebirth services.¹⁷ A recent study¹⁴ noted that around 70% of women choosing the midwifery birth centres with independent midwives were multiparous. Women choosing the midwifery birth centres were seeking an environment that was perceived as emotionally and physically safe.

Therefore, to maintain safe expectant midwifery care the rapid and precise treatment for emergency events such as bleeding is recognized as one of the most important critical aspects working at birth centres where medical care is not 'on-site' and certain treatments such as episiotomies, suturing and use of uterotonics are allowed but only for the emergency cases when the woman and infant are in danger.¹⁶ However, the expectant management practices in Japanese birth clinics, particularly in relationship to third stage blood loss, during the first two critical hours for low-risk pregnancies, have not been researched and specific management practices during the third-stage of labour have not been identified.

Accordingly, this study was conducted in order to: (1) describe midwifery practice in midwifery managed birth centres for the first two hours after delivery; (2) provide a description of estimated postpartum blood loss volume and (3) compare midwifery care, client factors and postpartum blood loss volume.

2. Methods

2.1. Research design

This mixed methods descriptive study used retrospective data from a larger study¹⁴ using a convenience sample of 19 (40%) of the 46 midwifery birth homes serving women in the urban area of Tokyo. Thus part of this study was a secondary analysis. Interview data were organized by themes using content analysis.

2.2. Setting and subjects

The study locations were a convenience sample of nine Tokyo-based midwifery centres with beds located throughout the urban area of Tokyo. These homes were converted to meet the requirements of the Japanese licensing standards for safe birth.¹⁸

2.3. Data and data collection

Quantitative data were collected from all eligible delivery records of 4488 women giving birth in the nine midwifery centres during January 2001 to August 2006. Excluded from data analyses were 380 (8.4%) cases where births took place away from one of the nine midwifery centres because of the need for medical treatment related to breech delivery, preterm premature rupture of membrane, weak contractions, weaker foetal heartbeat or in keeping with Japanese tradition returning to their parents' home for the delivery. These 380 cases were not relevant to this study as no third stage care was provided. Another 57 women (1.3%) were transported from the midwifery centre to a hospital during the delivery period to the puerperal period due to high risk situations such as primary haemorrhage, placenta accreta or haematoma formation and were also excluded from the study. Thus researchers analysed 4051 birth records relating to pregnancy and childbirth.

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