International Journal of Pharmaceutical research and Applications
Volume 11, Issue 1, Jan - Feb 2026, pp:191-194 www.ijprajournal.com ISSN: 2456-4494

Evaluation of Oxytocin Use in Term Labor at The Obstetric Inpatient Ward of Rsud Dr. Rasidin, Padang City (January–December 2023)

Neldi, Vina[1*]; Jannah, Risa Nadratul[2]; Agustina, Endang[2]; Ifora[2]
[1]*Department Of Pharmacy,Faculty of Medicine and Health Sciences,UniversitasJambi,JambiCity,Jambi Indonesia*
[2]*School Of Pharmaceutical Sciences, Padang, West Sumatra, Indonesia*
**Corresponding Author*

Date of Submission: 08-01-2026 Date of Acceptance: 20-01-2026

ABSTRACT:
Normal vaginal delivery at term represents the desired outcome of childbirth. Labor induction is performed when continuation of pregnancy poses potential risks to maternal or fetal health. Oxytocin is one of the most commonly used pharmacological agents to induce or augment labor due to its uterotonic properties. This study aimed to evaluate the pattern of oxytocin use and its impact on the induction-to-delivery interval in term pregnancies. A retrospective descriptive study was conducted using medical records of term pregnant women who underwent labor induction with oxytocin at RSUD dr.Rasidin, Padang City, from January to December 2023. A total of 28 eligible cases were included using a total sampling technique. Data were analyzed descriptively and presented as frequencies and percentages. The majority of patients were aged 20–35 years (67.86%), had gestational age <38 weeks (42.86%), and experienced a hospital stay of two days (64.29%). Oxytocin administration varied between 5 IU and 10 IU, with most deliveries occurring within 4–7 hours following induction (48.1%). Oxytocin induction in term pregnancies was found to be effective in enhancing uterine contractions and shortening the duration of labor when appropriately administered.

KEYWORDS: Oxytocin, Labor Induction, Term Pregnancy, Obstetrics, Pharmaceutical Care

I. INTRODUCTION

Labor is a physiological process characterized by progressive cervical effacement and dilation, fetal descent through the birth canal, and culminating in the delivery of the fetus and placenta. Successful childbirth is commonly defined as spontaneous vaginal delivery occurring at term gestation, which ranges from 37 to 42 completed weeks of pregnancy [1]. Preterm delivery, defined as birth before 37 weeks of gestation, is associated with increased maternal and neonatal morbidity and mortality. Although spontaneous labor is preferred, medical intervention is often required when maternal or fetal conditions make continuation of pregnancy unsafe. Labor induction has become an integral component of modern obstetric practice, with increasing global prevalence due to improved clinical guidelines and risk-based decision-making [2]. The World Health Organization (WHO) recommends labor induction for specific indications such as post-term pregnancy, hypertensive disorders, premature rupture of membranes, and suspected fetal compromise [3]. Pharmacological agents remain the cornerstone of labor induction, with oxytocin and prostaglandins being the most widely used. Oxytocin, a synthetic analogue of an endogenous posterior pituitary hormone, stimulates uterine smooth muscle contractions and is commonly administered during the active phase of labor. Compared to prostaglandins, oxytocin is associated with a more predictable labor response when used with appropriate titration and monitoring [4]. However, improper use may increase the risk of uterine hyperstimulation, postpartum hemorrhage, and operative delivery [5]. Despite its widespread use, data regarding oxytocin utilization patterns and labor outcomes in regional referral hospitals remain limited. Therefore, this study aimed to evaluate oxytocin use in term labor by assessing induction-to-delivery intervals and length of hospital stay at RSUD dr.Rasidin, Padang City

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 1, Jan - Feb 2026, pp:191-194 www.ijprajournal.com ISSN: 2456-4494

II. MATERIAL AND METHODS

2.1 Study Design and Setting

This study employed a descriptive, non-experimental design with a retrospective approach. The research was conducted at the obstetric inpatient ward of RSUD dr.Rasidin, Padang City, Indonesia.

2.2 Data Source and Sample

Secondary data were obtained from medical records of women with term pregnancies who underwent labor induction with oxytocin between January and December 2023. A total sampling technique was applied, resulting in 28 eligible cases.

2.3 Inclusion and Exclusion Criteria

Inclusion criteria were term pregnant women receiving oxytocin induction with complete and readable medical records. Records with missing or illegible data were excluded.

2.4 Data Collection and Analysis

Data were collected using a structured extraction form and analyzed descriptively. Results were presented as frequencies and percentages using Microsoft Excel.

2.5 Ethical Considerations

Patientconfidentiality was maintained by anonymizing all medical record data. Ethical approval was obtained from the institutional authority of RSUD dr.Rasidin.

III. RESULTS AND DISCUSSION

In this study, maternal age was categorized into three groups: young reproductive age (<20 years), optimal reproductive age (20–35 years), and advanced reproductive age (>35 years). The findings demonstrated that the majority of women who underwent labor induction were within the optimal reproductive age group (20–35 years), accounting for 67.86% of cases (Table 1). This result is consistent with previous research by Rohmah (2020), which reported that labor induction is most frequently performed among women in this age range. Clinically, women aged 20–35 years generally exhibit optimal reproductive physiology and fewer obstetric complications, making them more suitable candidates for induction when medically indicated (6).

Table 1. Maternal and Pregnancy Characteristics ofTerm Pregnancies Undergoing OxytocinInduced Labor (n = 28)

Characteristic	Category	n	%
Maternal age (years)	< 20	2	7.1
	20–35	19	67.8
	> 35	7	25
Gestational age (weeks)	< 38	12	42.8
	38–39	5	17.8
	> 39	11	39.2
Length of hospital stay (days)	2	18	64.2
	3	8	28.5
	4	2	7.14
Maternal comorbidities*	Hypertension	7	63.6
	Anemia	3	27.2
	Epilepsy	1	7.6

*Percentages for comorbidities are calculated based on patients with documented comorbid conditions (n = 11).

The association between maternal age and length of hospital stay revealed that women aged <20 years and >35 years experienced longer hospitalization durations (2–4 days), whereas those aged 20–35 years tended to have shorter stays, with an average of 2 days. These findings align with the study by Stastna et al. (2023), which showed that mothers aged 25–35 years had significantly shorter lengths of hospital stay compared to younger and older age groups (7).Prolonged hospitalization among mothers aged <20 years may be attributed to several biological and psychosocial factors. Adolescents are more likely to experience prolonged labor due to relatively smaller pelvic dimensions, which can delay labor progression. In addition, limited experience and knowledge regarding self-care and neonatal care may increase the need for extended postnatal observation and support (8). From a biological perspective, the reproductive system in younger mothers may not yet be fully mature anatomically or physiologically, and psychological readiness for pregnancy and childbirth may also be

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 1, Jan - Feb 2026, pp:191-194 www.ijprajournal.com ISSN: 2456-4494

limited. These factors collectively increase the risk of obstetric complications and adverse maternal and neonatal outcomes (9).Similarly, women of advanced maternal age (>35 years) were found to have longer hospital stays, which may be related to a higher prevalence of medical and obstetric complications, including gestational hypertension, gestational diabetes mellitus, and other comorbid conditions requiring closer monitoring (8)

Age-related decline in the strength and elasticity of abdominal and perineal muscles may contribute to prolonged or obstructed labor. Furthermore, physiological aging of the reproductive system is associated with reduced uterine contractility and decreased responsiveness to labor-inducing agents, potentially leading to less efficient labor progress (6;10).Regarding gestational age, the present study showed that women with gestational age <38 weeks and 38–39 weeks had comparable lengths of hospital stay (2–3 days), whereas those with gestational age >39 weeks tended to have longer hospitalization (3–4 days)Tabel 1. Labor induction was more frequently performed at term gestation compared to preterm or postterm pregnancies, reflecting differences in maternal and neonatal risk profiles. At term, fetal organ systems—particularly the lungs—are sufficiently mature, resulting in lower risks of respiratory and other neonatal complications compared to preterm births.Induction of labor in preterm pregnancies is generally avoided unless there are compelling medical indications, as preterm neonates are at increased risk of respiratory distress syndrome, intraventricular hemorrhage, and neonatal infections. Conversely, postterm pregnancies (≥40 weeks) are associated with increased risks of placental insufficiency, fetal macrosomia, labor dystocia, higher rates of operative delivery, and intrauterine fetal demise. Therefore, labor induction near or beyond 40 weeks of gestation is often recommended to mitigate these risks (11).

In this study, the majority of deliveries following oxytocin induction occurred within 4–7 hours, Table 2.

Table 2. Induction-to-Delivery Interval Following Oxytocin Administration (n = 28)

Induction-to-Delivery Interval (hours)	n	%
4–7	13	48.1
8–11	11	40.7
12–15	1	3.7
16–19	2	7.4
Total	**28**	**100.00**

This finding is comparable to that reported by Satria et al(2022), who observed that administration of 5 IU oxytocin diluted in 500 mL of crystalloid solution resulted in labor onset within approximately 3–5 hours (12). When active labor is not achieved within 24 hours or when there is failure to progress to the active phase, cesarean section is generally recommended to prevent complications associated with prolonged induction, including postpartum hemorrhage (13).Oxytocin was administered at doses of 5 IU and 10 IU diluted in Ringer's lactate solution. The induction protocol involved initiating oxytocin at 5 IU with an infusion rate of 8 drops per minute, followed by incremental increases every 15 minutes up to a maximum of 40 drops per minute if adequate labor progress was not observed (14). Controlled and titrated administration of oxytocin facilitates sustained uterine contractions, thereby enhancing labor efficiency while minimizing the risk of adverse maternal and fetal outcomes.

IV. CONCLUSION

Oxytocin use for labor induction in term pregnancies at RSUD dr. Rasidin was effective in promoting uterine contractions and reducing the induction-to-delivery interval. Appropriate dosing and monitoring are essential to optimize labor outcomes and minimize complications.

REFERENCES

[1]. Cunningham FG, Leveno KJ, Bloom SL, et al. *Williams Obstetrics*. 26th ed. New York: McGraw-Hill; 2022.
[2]. Chen I, Opiyo N, Tavender E, et al. Induction of labour at or beyond term. *Am J Obstet Gynecol*. 2021;224(6):554–565.
[3]. World Health Organization. *WHO recommendations on induction of labour*. Geneva: WHO; 2023.

International Journal of Pharmaceutical research and Applications
Volume 11, Issue 1, Jan - Feb 2026, pp:191-194 www.ijprajournal.com ISSN: 2456-4494

[4]. Acharya G, Sitras V, Maltau JM. Oxytocin use in labor induction and augmentation: maternal and neonatal outcomes. *Int J Gynecol Obstet*. 2020;149(2):210–216.
[5]. American College of Obstetricians and Gynecologists. Practice Bulletin No. 219: Induction of labor. *Obstet Gynecol*. 2022;139(6):e1–e18.
[6]. Rohmah, F.N .,&Umu, H. E. N. (2020). Faktor-Faktor Yang BerhubunganDenganKeberhasilanInduksiPersalinan. *Profesi (Profesional Islam): Media PublikasiPenelitian*, *18*(1), 42–54
[7]. Stastna, A., Ludek, S., Jirina, K., & Tomas, F. (2023). Does advanced maternal age explain the longer hospitalisation of mothers after childbirth? *Plos One*, *18*(4 April), 1–22
[8]. Pratama, B. A. (2024). HubunganUsiaKehamilan dan JenisPersalinandengan Lama Rawat InapKasus Low Birth Weight di RS PKU Muhammadiyah Surakarta Tahun 2022. Indonesian Journal on Medical Science, 11(1), 63–70
[9]. Yanuarini, T. A., Kristianti, S., & Sari, E. L. A. (2022). Karakteristik Ibu DalamKeberhasilanInduksiPersalinanOksitosin Drip. *JurnalWiyata: Penelitian Sains Dan Kesehatan*, *9*(1), 1
[10]. Biaggi, A., Conroy, S., Pawlby, S., &Pariante, C. M. (2016). Identifying the women at risk of antenatal anxiety and depression: A systematic review. *Journal of Affective Disorders*, *191*, 62–77
[11]. Salmarini, Lathifah, &Puruhita. (2016). Faktor-faktor yang BerhubungandenganKegagalanInduksiPersalinan di RSUD dr.MurjaniSampit. *AkademiKebidanan Sari Mulia Banjarmasin*, *7*(2), 147–156.
[12]. Satria D, Putri RA, Lestari D. Comparison of oxytocin and misoprostol for labor induction in term pregnancy. *BMC Pregnancy Childbirth*. 2022;22:812..
[13]. Girma, W., Tseadu, F., &Wolde, M. (2018). Outcome of Induction and Associated Factors among Term and Post-Term Mothers Managed at Jimma University Specialized Hospital: A Two Years' Retrospective Analysis. *Ethiopian Journal of Health Sciences*, *26*(2), 121–130.
[14]. Arbiyah. (2022). AsuhanKebidanan Intra Natal Care denganKasusInersia Uteri di RumahSakitUmumDewiSartika Kota Kendari Tahun 2022. *JurnalPenelitian Sains Dan Kesehatan Avicenna*, *1*(3), 14–20.