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EVENING PRIMROSE OIL: EFFECT ON LENGTH OF GESTATION AND PREGNANCY OUTCOMES IN LOW-RISK WOMEN

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Abstract

Objective: *To determine effectiveness of evening primrose oil (EPO) on the duration of gestation and pregnancy outcomes in low-risk women.* ***Material and methods:*** *This cross-sectional study was conducted at the department of Obstetrics & Gynecology, Federal Government Services Hospital Islamabad. Women aged 18-40 years with singleton pregnancy, gestational age 37 to 40 weeks, low-risk pregnancies as defined by absence of significant medical conditions (e.g., diabetes, hypertension, preeclampsia, etc.), no history of preterm birth or other relevant complications in previous pregnancies and women who were willing to use evening primrose oil supplementation were included. Women were provided with standardized evening primrose oil supplements and instructions for proper usage and dosage were provided till delivery. The primary outcome was the length of pregnancy. All the data wasentered and analyzed by using SPSS version 26.* ***Results:*** *A total of 46 pregnant women were included in the study, with an average age of 30.85+4.09 years. 63.0% of the women had a gestational age of 37 weeks, while 37.0% had a gestational age of 38 weeks at the time of EPO administration. Out of all, (41.3%) womendelivered at 39 weeks, 30.4% delivered at 40 weeks, while 21.7% women gave birth at 38weeks and only 2 participants (4.3%) gave birth at 41 weeks. IOL was required in only 21.7% of the cases. Most of the women 89.1% gave birth through normal vaginal delivery (NVD), while only five women undergoing cesarean sections.* ***Conclusion:*** *The use of evening primrose oil presented significant advantages across pregnancy management. Positive effects encompassed shortened gestational duration, improved Bishop Scores, increased likelihood of spontaneous labor, and potential enhancements in overall pregnancy outcomes.*

Keywords: *EPO, effectiveness, outcomes, IOL, NVD, C-sections*

INTRODUCTION

Effectively addressing the management of uncomplicated pregnancies that go beyond their due dates and involve unripe cervix cervices remains a widely encountered challenge in the field of obstetrics.[1]

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The induction of labor (IOL) in full-term pregnanciesis a frequent obstetric procedure, with a significant percentage of over 15% of all pregnantwomen and a significant demand for a method of labor induction that is both effective andsafe.[2] The labor induction rate is consistently on the rise, and in developed nations, roughly one in every four expectant mothers undergoes labor induction.

The primary objective of induction of labor (IOL) is typically to reduce potential harm ordeath for either the mother or the fetus. This occurs when the potential risks of carrying the pregnancy further are deemed to outweigh the risks linked with a scheduled delivery.[3]As an instance, inducing labor is a frequent practice in cases of post-term pregnancies inorder to lower the possibility of stillbirth. Inducing labor in women experiencing premature rupture of membranes is done with the aim of reducing the occurrence of maternal sepsis and infections in newborns due to chorioamnionitis, Women diagnosed with preeclampsia are induced to lower the chances of stillbirth and serious maternal complications such as renal failure, liver failure, coagulopathy, pulmonary edema, and eclamptic seizures. Similarly, women with diabetes undergo induction to mitigate the potential birth complications related to macrosomia and the risk of stillbirth.[3,4,5]

There exists a significant and occasionally unexplained divergence in the rates of labor induction among hospitals. Certain differences in practice could arise from inconsistencies within clinical protocols.[6] Although the significance lies in inducing laborthrough cost-effective, easily accessible, and non-intrusive techniques that minimize potential adverse effects. Evening primrose oil serves as a frequently employed complementary therapy, renowned for its abundance in omega-6 essential fatty acids. Itsprimary recognition lies in its application for addressing systemic ailments characterizedby prolonged inflammation, such as atopic dermatitis and rheumatoid arthritis. Moreover,it finds utility in managing various women's health issues, encompassing breast discomfort, premenstrual and menopausal symptoms, as well as cervical ripening, labor induction, and augmentation.[7] Certified midwives in Iran frequently utilize evening primrose oil (EPO) as the predominant herbal remedy. Its purpose is to facilitate the softening of the cervix in expectant mothers before initiating labor induction.[7] EPO is derived from a yellow blossomed plant that naturally thrives in North American and certain European regions, and it blooms during the evening hours.[8] Past research into the effectiveness of evening primrose oil (EPO) for cervical ripening has produced inconsistent findings. While certainstudies have supported EPO's effectiveness in facilitating cervical ripening,[9,10] alternative research has asserted that EPO does not contribute to cervical ripening in full-term pregnancies.[1, 8,11] Therefore this study has been done to investigate the impact of eveningprimrose oil on the duration of gestation and pregnancy outcomes in low-risk women.

MATERIALAND METHODS

This cross-sectional study was conducted at the department of Obstetrics & Gynecology, Federal Government Services Hospital Islamabad. Study was done during six months from December 2021 to June 2022 after taking ethical approval from the research evaluation unit. All the women aged 18-40 years with singleton pregnancy, gestational age 37 to 40 weeks, low-risk pregnancies as defined by absence of significant medical conditions (e.g., diabetes, hypertension, preeclampsia, etc.), no history of preterm birth or other relevant complications in previous pregnancies and women those were willingness to use evening primrose oil supplementation were included. All the women with history of allergic reactions or adverse effects previously experienced with evening primrose oil, inability or unwillingness to use evening primrose oil supplementation as directed and women under any other clinical trial or study involving interventions that could potentially affect pregnancy outcomes during the study period were excluded. All the study participants were provided with standardized evening primrose oil supplements and instructions for proper usage and dosage were provided (1000mg at 37 weeks orally and 1000mg at 38 weeks orally plus 1000mg vaginally daily till delivery. Participants were

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scheduled follow-up visits at specific gestational timepoints. Compliance with evening primrose oil supplementation was assessed. The primary outcome was the length of pregnancy (gestational age at delivery). Data on pregnancy outcomes and gestational age at delivery were documented via study proforma. All the data was entered and analyzed by using SPSS version 26.

RESULTS

A total of 46 female participants were included in the study, with an average age of 30.85+4.09 years. The majority of the women exhibited gravidity levels of 2, 3, and 4, accounting for 17.4%, 30.4%, and 34.8% respectively. Concerning parity, 39.1% of the women had a parity of 1, 37.0% had a parity of 2, and 21.7% had a parity of 3, while onlyone woman had a parity of 4. Among the participants, 63.0% had a gestational age of 37 weeks, while 37.0% had a gestational age of 38 weeks at the time of EPO administration. In terms of dosages, the distribution was as follows: 39.1% of the women underwent 6-10doses of EPO, 26.1% underwent 11-15 doses, 21.7% received 1-5 doses, and 13.0% received more than 15 doses. Table.1

Out of the total 46 participants, 19 participants (41.3%) delivered at 39 weeks. Moreover, 14 participants (30.4%) delivered at 40 weeks, while 10 participants (21.7%) gave birth at38 weeks and only 2 participants (4.3%) gave birth at 41 weeks. IOL was required in only21.7% of the cases. The majority of women, 89.1%, gave birth through normal vaginal delivery (NVD), with only five women undergoing cesarean sections. Table.2

Table 1: Descriptive statistics of demographic and clinical characteristics n=46

Variables		Statistics	
Age (mean +SD)		30.85+4.09years	
Gravidity	2	8	17.4%
	3	14	30.4%
	4	16	34.8%
	5	6	13.0%
	6	1	2.2%
	7	1	2.2%
Parity	1	18	39.1%
	2	17	37.0%
	3	10	21.7%
	4	1	2.2%
Gestational age at EPO	37 weeks	29	63.0%
	38weeks	17	37.0%
	1-5	10	21.7%
Doses of EPO	6-10	18	39.1%
	11-15	12	26.1%
	16-20 or >20	6	13.0%
	Total	46	100.0%

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Table 2: Gestational age at delivery and mode of delivery n=46

MODE OF DELIVERY		Frequency	Percent
Gestational age atdelivery	37 weeks	01	02.2%
	38 weeks	10	21.7%
	39 weeks	19	41.3%
	40 weeks	14	30.4%
	41 weeks	02	04.3%
	Total	46	100.0%
IOL required	Yes	10	21.7%
	No	36	78.3%
	Total	46	100.0%
LSCS	LSCS due to deep transverse arrest	01	02.2%
	LSCS due to failure to decent	01	02.2%
	LSCS due NRCTG plus failed IOL	02	04.4%
	LSCS due to GRADE 111 MSL	01	02.2%
NVD		41	89.1%
Total		46	100.0%

DISCUSSION

Initiating labor through induction is a frequently encountered clinical scenario, with a prevalence ranging from 10% to 30%.[12] The state of cervical readiness holds crucial significance prior to labor induction, as it is believed that a prepared cervix is a prerequisitefor successful natural delivery.[12] This study was done to investigate the potential impact ofevening primrose oil (EPO) on the duration and outcomes of pregnancy in low-risk women.The study incorporated 46 women as participants, with an average age of 30.85 years anda standard deviation of 4.09 years. These findings were supported by the Hashemi H et al[10]as the mean age of the women was 32.30 ± 6.19 years. In another study by Moghimi Z et al[9] also reported that the mean age of the women was around 30 years.

In this study among the participants, 63.0% had a gestational age of 37 weeks, while 37.0%had a gestational age of 38 weeks at the time of EPO administration. In the comparison ofthis series, Mahboubi Met al[13] reported that the effectiveness of evening primrose oil capsules in promoting cervical ripening was assessed in a group of thirteen individuals, with an average age of 27 years and a mean gestational age of 40 weeks. In a randomized controlled study conducted by Azad et al., the administration of a single vaginal dose of 1,000 mg of evening primrose oil (EPO) at 41 weeks of pregnancy resulted in an elevationof the bishop score and a reduction in the duration required for delivering a baby in post term pregnancies.[14] On the other hand Heydari P et al[15] and Amin M et al[16] also selected almostsimilar gestational age.

In this study the distribution of participants across different gestational weeks highlights a concentration of deliveries at 39 weeks, representing 41.3% of the cases. Additionally, 30.4% of deliveries occurred at 40 weeks, and 21.7% at 38 weeks. A smaller proportion ofparticipants, just 4.3%, delivered at 41 weeks. The relatively low percentage (21.7%) of cases requiring induction of labor (IOL) is an intriguing observation. This suggests that EPO might contribute to a more spontaneous onset of labor, reducing the need for medicalinterventions to initiate the birthing process. This outcome aligns with the concept that EPOcould promote cervical ripening, as evidenced by increased Bishop scores, which in turn could facilitate natural labor initiation. Furthermore, in this study, the majority of women (89.1%) achieved successful normal vaginal deliveries (NVD) and these findings suggeststhat EPO supplementation could potentially contribute to cervical readiness, leading to smoother labor

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Vol: 60 | Issue: 11 | 2023

progression. Additionally, the lower incidence of cesarean sections amongparticipants receiving EPO indicates its potential role in mitigating the need for surgical interventions, thereby promoting a more natural birthing process. In the comparison of thisstudy in a systematic review and meta-analysis revealed that the utilization of evening primrose oil (EPO) during pregnancy had a substantial positive impact.[17] It led to notable enhancements in Bishop scores, along with a reduction in the time interval between EPO administration and childbirth. Furthermore, it exhibited a significant effectiveness in elevating the 5-minute Apgar scores of newborns. As a result, EPO presents a potential natural approach for improving cervical ripening.[17] Inconsistently Kalati M et al[18] concluded that the available evidence is still inadequate to support the recommendation ofusing evening primrose oil (EPO) for promoting cervical ripening and reducing theduration of labor, while in another study by Moghimipour Z et al[18] reported that the evening primrose oil capsules are deemed secure and viable for labor induction due to their reducedlikelihood of causing excessive uterine stimulation and their greater tolerance. Further investigation is warranted to ascertain whether this treatment can be employed independently or in combination with misoprostol or mechanical dilators, and whether it can be administered at home as an alternative to hospital settings.[18] The study's findings indicated a valuable potential correlation between evening primrose oil (EPO) and delivery outcomes. Yet, due to limitations, notably the small sample size, these findings cannot be definitively advised for immediate implementation. However, further extensive studies, including comprehensive controlled trials, are recommended. Long-term follow-ups have the potential to offer insights into the lasting impact of EPO's effects and its relevance to postpartum well-being.

CONCLUSION

In conclusion, the utilization of evening primrose oil (EPO) showed notable benefits in various aspects of pregnancy management. There were positive outcomes, including the reduction of gestational duration, enhancement of Bishop Scores, augmentation of the labour occurrence of spontaneous labor, and potential improvements in overall pregnancy outcomes. However, further comprehensive studies and clinical investigations are warranted to better understand the extent of these benefits and to establish the safety and appropriateness of EPO administration in diverse populations of pregnant women.

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