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RESEARCHARTICLE

FETO MATERNAL OUT COME IN POSTDATED PREGNANCY IN A TERTIARY CARE CENTRE

Kavita Kuldeep, Vineeta Garg, Pravin Sasane and Nitin Tiwari

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Abstract

Introduction: Post dated pregnancy contributes significantly to perinatal morbidity and mortality.Identifying its outcomes is crucial for developing context-specific care guidelines.

Objective: To assess maternal morbidity, mortality,and fetaloutcomes in postdated pregnancies in a tertiary care hospital.

Materials and Methods: This prospective observational study was conducted from April 2023 to July2023 in the Department ofObstetrics and Gynecology at Govt. RDBP Jaipuria Hospital, Jaipur. A total of 108 women with singleton, cephalic, postdated pregnancies were enrolled using purposive sampling. Women with high-risk conditions or prior caesarean sections were excluded. After informed consent, detailed obstetric history, clinical examinations, and intrapartum monitoring were conducted. Labour was managed based on Bishop's score, and out comes were documented until hospitaldischarge.

Statistical analysis was performed using Microsoft Office 365, with p-values <0.05 considered significant.

Results: Most participants were aged 21–25 years (52.8%),primiparous (58.3%), and delivered between 40–41 weeks (54.6%). Vaginal deliveries (63.9%) outnumbered caesarean sections (36.1%). Common indications for caesarean included fetal distress (38.5%) and CPD/arrest of labor (25.6%). Maternalcomplications occurred in 7.4% ofcases, withpostpartumhemorrhage and chorioamnionitisbeing most common (2.8% each). Respiratory distress (13.9%) and meconium aspiration syndrome (5.6%) were the leading neonatal complications. The association between gestational age and complications was statistically insignificant.

Conclusion: Though most postdated pregnancies resulted in favourable outcomes, careful monitoring, timely intervention, and individualized labour strategies are essential to minimize risks and optimize maternal and fetal health.

Introduction:-

A full-term pregnancy lasts 39–40 weeks and 6 days from the first day of the last menstrual cycle. Late-term pregnancy is defined as41–42 weeksofpregnancy. Gestationover 40 weeksor 280 days isreferred to aspostdated pregnancy. Any pregnancy lasting 294 days or longer is considered prolonged.[1-3]A postdated pregnancy occurs around7%ofthetime.[4]Significant risk sassociated with postdated pregnancy include labour dystocia(9-12%versus

CorrespondingAuthor:-KavitaKuldeep

2-7% at term), severe perinatal injury related to macrosomia (3.3% versus 2.6% at term), and a doubling of the caesarean delivery rate with associated endometritis, PPH, and thrombophlebitis.[5]
The origin of the majority of postdated pregnancies is unknown. Prior postdated pregnancies and primigravidity are the most common observable risk factors. The likelihood of becoming pregnant again increases two to three times after a postdated pregnancy, and the risk quadruples after two postdated pregnancies.[6] The perinatal mortality rate (stillbirthplusearly neonataldeaths) isdouble that oftermat more than40 weeksofgestation(4–7 deathsagainst 2- 3 deaths per 1000 babies), and it rises by a factor of 6 or more at 43 weeks and beyond. Intrauterine infection, meconium aspiration, and uteroplacental insufficiency all raise the risk of perinatal deaths. Additionally, low 5-minute APGAR scores and low umbilical artery pH levels at birth are independent risk factors for postdated pregnancy.[5,7] It is essential to detect postdated pregnancy before to delivery by evaluating risk factors, precisely scheduling, and providing the right care in order to prevent obstetric issues (for both the mother and the fetus) and improve the obstetric result. Therefore, this study will assist in identifying the variations in perinatal outcomes of postdated pregnancy and in the development of our own care guidelines for postdated pregnancy based on regional data.Objective- To assess the Maternal Mortality, Morbidity and fetal outcome in postdated pregnancy in a tertiary care hospital.

Materials and Methods:-

This Hospital-based Prospective Observational studywas carried out in the Department of Obstetrics and Gynecology, Govt. RDBP JaipuriaHospital, RUHS CMS, Jaipur. This studywasconducted fromApril2023to July 2023 after institutional ethical committee approval, NBE Registration No. 225-39129-211-239558.

A total of 108 postdated pregnancy were included in the study through purposive sampling. Women with singleton pregnancies and cephalic presentation, who were postdated with regular menstrual cycles and either a known last menstrual period (LMP) or confirmed gestational age through first trimester ultrasonography. Only uncomplicated antenatal cases beyond 40 weeks of gestation, who were willing to participate in the study, were included in the study. High-risk pregnancies like diabetes, antepartum haemorrhage, premature rupture of membranes, pregnancy-induced hypertension, heart disease, chronic hypertension, or chronicrenaldisease, and/or witha historyofprevious caesarean section, those with congenital anomalies, multiple gestations, or malpresentation were excluded from the study.

Methodology:-

Written Informed consent was obtained from all participants prior to enrolment. Privacy and confidentiality were ensured.A detailed clinical history was recorded, including the patient's age, antenatal booking status, socio-economic background, parity, menstrual history, time of onset and characteristics of leaking (amount, color, odor), association with pain or bleeding per vagina, perception of fetal movements, history of similar episodes in previous pregnancies, and any features suggestive of cervical incompetence.

Obstetric examination included assessment of the height of uterine fundus, fetal lie, presentation and position, engagement of the presenting part, and the condition of the uterus (contracted or relaxed). Uterine tenderness was assessed as a clinical sign of chorioamnionitis. Fetal heart sounds were auscultated and their rate, rhythm, and tone were documented.A sterile speculum examination was performed to assess the presence of amniotic fluid in the vaginalcanal. Asingle pelvic examination wasperformed to evaluatethe Bishop’sscore, pelvic adequacy, presence of cephalopelvic disproportion (CPD), and to rule out cord prolapse.

Maternal monitoring included recording of pulse, blood pressure, and temperature every four hours. Fetal heart soundswere monitoredevery30 minutes initiallylabour management was basedontheBishop's score. Labour was either allowed to progress spontaneouslyor was induced using cerviprime gelor misoprostol25 mcg in accordance withRCOGguidelines. Throughout theintrapartumperiod, complications suchas fetaldistress, abnormal fetalheart rate patterns, and clinical signs ofchorioamnionitis were closely monitored. Cases exhibiting fetal jeopardyor other obstetric complications underwent timely caesarean delivery.During the third stage of labour, mothers wereobserved for complications such as postpartum haemorrhage and retained placenta. Postpartum follow-up included monitoring for puerperal sepsis, urinary tract infections, respiratory tract infections, and wound infections at episiotomy or caesarean section sites. Symptoms such as foul-smelling lochia and febrile illness were specifically inquired about during the puerperal period.

Neonates were followed postnatally for mortality and morbidity. Particular attention was given to identifying complications suchas birthinjuries, signsofasphyxia, meconiumaspiration, and neonatalsepsis. Bothmaternaland neonatal outcomes were recorded until the time of discharge from the hospital.

StatisticalAnalysis

Data analysis was performed using Microsoft Office 365. Continuous variables were expressed as mean ± SD or median(IQR), and comparisons betweengroups were made using Student's t-test, Chi-square test, or Fisher's exact test as appropriate.[8]p-values <0.05 were considered statistically significant.

Results:-

[Table 1] The majority of the participants were aged between 21–25 years (52.8%), followed by 26–30 years (25.0%). Most women were at 40–41 weeks of gestation (54.6%), and 58.3% were primiparous. Adequate amniotic fluid was observed in 75.9% ofthe cases. Most of women 60.2% had spontaneous onset, while 39.8% underwent induction. Vaginal deliveries were more common (63.9%) compared to caesarean sections (36.1%).The most common indication was fetal distress in(38.5%, 15/39) cases, followed by cephalopelvic disproportion (CPD) or arrest of labor in (25.6%, 10/39), oligohydramnios in (20.5%, 8/39) of and failed induction was the indication in (15.4%, 6/39) of cases.

[Table 2] Postpartum hemorrhage and chorioamnionitis each occurring in 2.8% ofthe participants, and perineal tear reported in 1.9% ofcases. However, the majority(92.6%) did not have any maternalcomplications. Most newborns (76.9%) had no complications. The most commoncomplication was respiratory distress in 13.9% of neonates, followed by meconium aspiration syndrome (5.6%), septicemia (1.9%), shoulder dystocia (0.9%), and stillbirth (0.9%).81.5% of neonates were in excellent condition (score 7–10), while 18.5% were moderately depressed (score 4–6), andnonewereseverelydepressedat 1min. By5 minutes,93.5%ofneonatesscoring intheexcellent rangeand only6.5%remaining moderatelydepressed,withnocasesofseveredepression. Themajorityofchildren(83;76.8%) were not admittedto the NICU, while the remaining 25 (23.1%) required NICU admission dueto complications.

The majorityof infants, 72(66.7%), had a birthweight between2.5–3 kg, Low birthweight (<2.5kg) wasobserved in 16 (14.8%) newborns, while 17 (15.7%) had a birth weight between 3–3.5 kg and 3 (2.7%) newborns weighed more than 3.5 kg.

[Table 3] A higher proportion of spontaneous labour was observed in women delivering at 40–41 weeks (60%) compared to later gestational ages, with increase in gestational age there was increase in proportion of women with induced labour, although this association was not statistically significant (P = 0.058). Vaginal delivery being most common at 40–41 weeks (69.5%), while caesarean section rates increased with advancing gestational age, this association of mode of delivery with gestational age was statistically significant (p<0.05).

[Table 4] Most maternal complications occurred in the 40–41 weeks group—66.7% of postpartum hemorrhage and chorioamnionitis, and50% ofperinealtears. No complicationswerereportedinthe>42weeksgroup for postpartum hemorrhage or perineal tear, although one case of chorioamnionitis (33.3%) occurred in this group. [Table 5] The 40–41 weeks group had the highest share offetal complications, including 66.7% of meconium aspiration syndrome and 46.7% ofrespiratorydistresscases. Incontrast, rare but severe outcomes such as shoulder dystocia and stillbirth were exclusively observed in the 41–42 weeks group. Notably, the >42 weeks group had a smaller sample size but still showed 20% of respiratory distress cases. Association of gestational age with maternal and fetal complications was statistically insignificant (p>0.05).

Discussion:-

MaternalAgeDistribution

In the present study, the majority of participants (52.8%) were aged 21–25 years, while only 6.4% were above 30 years. This finding aligns with the study by Bhriegu R et al[9], where 79% of the participants were within the 20–25 age group. A similar age distribution was also reported by Punya BS et al[10].

GestationalAge Distribution
Most women in this study(54.6%) were between 40–41 weeks ofgestation, with only 5.6% beyond 42 weeks. This is consistent with findings from Bansal P et al[11] and Kandalgaonkar VP et al[12], where the majority of postdated pregnancies also occurred within the 40–41 week range.

Parity
Primiparouswomencomprised58.3% ofthestudypopulation, suggestinga higher incidenceofpostdatedpregnancy among primigravida. This trend is supported by Punya BS et al[10] and GolaitS et al[13], who also observed a greater prevalence of postdated pregnancy in primigravida women, indicating a potential predisposition in this group.

Modeof Delivery
Spontaneous labor occurred in 60.1% of cases, while 39.9% underwent induction. Vaginal deliveries were more common at 40–41 weeks (38.7%), whereas caesarean sections peaked at 41–42 weeks (61.2%), a relationship that was statistically significant. Similar trends were reported by Kandalgaonkar VP et al[12], where 46.9% had spontaneousvaginaldeliveryand 16.7% requiredcaesareansection. SinghN et al[14] reported66% vaginaldeliveries, 32% LSCS, and 2% instrumental deliveries. Bansal P et al[11] noted a higher LSCS rate in the study group (36%) compared to controls (16%), along with an increased incidence of instrumental deliveries (11.2% vs. 3.2%), reinforcing the association between postdated pregnancy and increased operative delivery.

Maternal Complication
In the present study, the majority of women (92.5%) experienced no maternal complications. Postpartumhemorrhage and chorioamnionitis were each observed in 2.7% of cases, while perineal tear occurred in 1.8%. The association between gestational age and maternal complications was not statistically significant.
In contrast, Agrawal S et al[15] reported a significant increase in maternal morbidity, including emergency caesarean sections, postpartum hemorrhage, and instrumental deliveries, with advancing gestational age beyond 40 weeks. SinghN et al[14] also observed maternal complications in 14% of cases, highlighting increased risks ofPPH, perineal and cervical tears, and shoulder dystocia. And Chaudhari SN et al[16] found a statistically significant rise in maternal complications as gestation extended beyond term.These findings suggest a potential trend of increasing maternal risks in postdated pregnancies, although this was not statistically evident in the current study.

Fetal Complications
In the present study, 76.9% of neonates had no complications. Respiratory distress was the most common (13.9%), followed by meconium aspiration syndrome (5.6%), septicemia (1.9%), and both stillbirth and shoulder dystocia (0.9% each). Onlya small proportionofnewborns had low APGAR scores. NICU admissionwas required in23.1% ofcases. However,the associationbetweengestationalage and fetalcomplications was not statistically significant.

Comparable findings were reportedbyBhriegu R et al[9], who observed a 33.3% NICUadmissionrate inpregnancies between41weeks1dayand42weeks,withfetaldistressbeingthemost frequent complication.Similarly,PunyaBS et al[10] and GolaitS et al[13] reported increased rates of fetal distress, low APGAR scores, and NICU admissions in postdated pregnancies, with a statistically significant association between prolonged gestation and adverse fetal outcomes.SinghNetal[14]notedfetalcomplicationsin23%ofcases,includingfetaldistress,meconiumaspiration,and asphyxia. Bansal P et al[11] found higher incidences of cephalopelvic disproportion (22.2%) and acute fetal distress (25%) in postdated pregnancies. Rajpriya M et al[17] reported that 25% of neonates required NICU care due to complications such as birth asphyxia, transient tachypnea of the newborn, and neonatal sepsis. These studies collectivelyreinforcethat postdatedpregnancyisassociatedwithahigher riskoffetalcomplications andsupportsits classification as a high-risk obstetric condition.

Limitations and Recommendations:-

This study offers key insights into the maternal and neonatal outcomes of postdated pregnancies, emphasizing risks related to delivery mode and neonatal complications. However, limitations include a small sample size, lack of a comparison group, potential inter-observer variability, and the observational hospital-based design, which limits causal inference. A larger, longitudinalstudywould enhance the validityof findings.

Table1:-DistributionofStudyParticipantsAccordingtoDemographic,Obstetric, andClinicalCharacteristics.

Variable		**Frequency(n=108)**	**Percentage**
Age group(Years)	<20years	17	15.7
	21 –25years	57	52.8
	26 –30years	27	25.0
	>30years	7	6.5
Gestational Age Category	40-41weeks	59	54.6
	41-42weeks	43	39.8
	>42 weeks	6	5.6
Parity	Primipara	63	58.3
	Multipara	45	41.7
LiquorStatus	Adequate	82	75.9
	Inadequate	26	24.1
LabourType	Spontaneous	65	60.2
	Induced	43	39.8
Modeofdelivery	Vaginaldelivery	69	63.9
	Caesareansection	39	36.1

Table2:-DistributionofMaternalandFetalComplications,andAPGARScores.

MaternalandFetalcomplications	**Frequency**	**Percentage**
Maternalcomplication		
PostpartumHaemorrhage	3	2.8
Perinealtear	2	1.9
Chorioamnionitis	3	2.8
NoComplications	100	92.6
Fetalcomplication		
Meconiumaspirationsyndrome	6	5.6
Respiratorydistress	15	13.9
Septicaemia	2	1.9
Shoulderdystocia	1	0.9
Stillbirth	1	0.9
Nil	83	76.9
APGARscoreat 1min		
Severelydepressed(0-3)	0	-
Moderatelydepressed(4-6)	20	18.5
Excellentcondition(7-10)	88	81.5
APGARscoreat 5min		
Severelydepressed(0-3)	0	-
Moderatelydepressed(4-6)	7	6.5
Excellentcondition(7-10)	101	93.5

Table3:-AssociationofGestationalAgewithLabourType and ModeofDelivery.

Variable		**Gestationalage**			**Test of significance**
		40-41 weeks	**41-42 weeks**	**>42weeks**	
Labour	Spontaneous	39(60%)	25(38.4%)	1(1.5%)	X2 = 5.679, Df=2; P = 0.058
	Induced	20(46.5%)	18(41.8%)	5(11.6%)	
Mode of Delivery	Vaginal	48(69.5%)	19(27.5%)	2(2.8%)	X2 = 17.466, Df=2; P<0.001
	Caesarean	11(28.2%)	24(61.5%)	4(10.2%)	

Table4:-AssociationofGestationalAgewithMaternalComplications.

Gestational Age	MaternalComplication			
	NoComplications	Post partum Hemorrhage	Perinealtear	Chorioamnionitis
40-41Weeks	54	2(66.7%)	1(50%)	2(66.7%)
41-42Weeks	41	1(33.3)	1(50%)	0
>42 Weeks	5	0	0	1(33.3%)
Total	100(100%)	3(100%)	2(100%)	3(100%)
Chi-square= 0.426with4 degreesoffreedom;P=0.980				

Table 5:-AssociationofGestationalAgewithFetalComplications.

Gestational age	FetalComplication					
	No Complications	Meconium aspiration syndrome	Respiratory distress	Septicemia	Shoulder dystocia	Stillbirth
40-41Weeks	47	4(66.7)	7(46.7)	1(50)	0	0
41-42Weeks	33	2(33.3)	5(33.3)	1(50)	1(100)	1(100)
>42Weeks	3	0	3(20)	0	0	0
Total	83(100%)	6(100%)	15(100%)	2(100%)	1(100%)	1(100%)
Chi-square=10.339 with10 degreesoffreedom;P= 0.411						

Conclusion:-

This study examined maternal and fetal outcomes in relation to gestational age, focusing on postdated pregnancies. The majority of women were young, primiparous, and delivered between 40 to 41 weeks of gestation, with spontaneousonsetoflaborbeingmorecommoninthisgroup.Althoughmostwomenandneonatesdidnotexperience complications, maternal morbiditiessuchaspostpartumhemorrhage, chorioamnionitis, andperineal tearsweremore frequently reported in the 40–41 weeks group. Similarly, fetal complications—particularly respiratory distress and meconiumaspiration—werealsohighest inthisgroup.Rarebutcriticaloutcomeslikeshoulderdystocia andstillbirth were observed only in the 41–42 weeks group. Although this association between gestationalage and both maternal andfetalcomplicationswerenotsignificant.Therefore,fromaclinicalperspective,carefulgestationalageassessment, appropriate decision-making regarding the timing of delivery, and individualized labor management protocols are essential to optimize both maternal and neonataloutcomes in postdated pregnancies.

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