

STUDY OF POSTDATISM WITH RESPECT TO FETOMATERNAL OUTCOME AT A TERTIARY CARE HOSPITAL

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INTRODUCTION

Prolonged or post-term pregnancies are associated with an increased risk of perinatal mortality and morbidity compared to pregnancies ending at term. According to World Health Organization (WHO) definition sanctioned by FIGO (International Federation of Gynecology and Obstetrics) in 1977, a baby is born at "term" if the delivery occurs at or between 37 completed weeks and 41⁺⁶ weeks from the first day of the last menstrual period (LMP). From 42 completed weeks or 294 days from the LMP onwards, a pregnancy is designated prolonged or post-term.¹ A postdated pregnancy extends to or beyond 40 weeks or 280 days from the first day of the LMP.² The incidence of postdated pregnancy is 4-41%.² The incidence of post-term pregnancy is 5-10%.³ The adverse outcome is mainly associated with placental

insufficiency, Meconium Aspiration Syndrome (MAS), macrosomia and birth injury.⁴ There is a six-fold increase in stillbirth rates in prolonged pregnancies from 0.35/1000 at 37 weeks to 2.12/1000 ongoing pregnancies at 43 weeks.⁵ The perinatal mortality rate at 42 weeks gestation is twice as high as that at 40 weeks, four-fold at 43 weeks and 5-7 fold at 44 weeks. There is evidence that when calculated per 1000 ongoing pregnancies, perinatal mortality rates increase sharply after 40 completed weeks.^{6,7} In postdated pregnancy, there are chances of fetal hypoxia, asphyxia, intracranial damage, Meconium Aspiration Syndrome (MAS), macrosomia, atelectasis, hypoglycemia and stillbirths. These perinatal risks increase with the increase in the gestational age beyond 40 completed weeks.⁸ The main risk to pregnant women is not prolonged pregnancy but the anxiety associated with it and the consequences of

ABSTRACT

OBJECTIVES

This study aims to know our setup's fetomaternal pregnancy complications that extend beyond 40 weeks of gestation.

METHODOLOGY

This is a prospective cross-sectional study of 390 patients with uncomplicated postdated pregnancies fulfilling the inclusion and exclusion criteria admitted to the department of Obstetrics and Gynecology (both in spontaneous labour and induced patient) at Hayatabad Medical Complex, a tertiary care hospital in Peshawar, KPK from July 2020 to June 2021.

RESULTS

Out of 390 patients, a majority (72.30 %) were in the age group of 20 – 35 years. Most of them (50.51%) presented at gestation 40⁺¹ – 40⁺⁶ weeks. The majority (57.69%) were multigravida, and most (93.07%) were un-booked. Most delivered vaginally (80.51%), and 19.48% had C/section (including both emergency and elective). The most common indication for C/section was fetal distress (44.73%), followed by C/section on demand (18.42%). The majority >90% had Apgar score greater than seven at 5 minutes which was gestation dependent. Overall perinatal mortality was 4.07% which was also gestation dependent ranging from 0.5% at 40⁺¹ – 40⁺⁶ weeks to 2.30% at and beyond 42 weeks of gestation. Neonatal morbidity in the form of Birth asphyxia, Meconium Aspiration Syndrome (MAS), Shoulder Dystocia and NICU admission also showed an increasing tendency with increasing gestation beyond 40 weeks. Maternal morbidity in the form of PPH, perineal tears 3°/4° and endometritis also showed a similar increasing trend with increasing gestation beyond 40 weeks.

CONCLUSION

Pregnancy continuing beyond 40 weeks has a definite risk to the fetus.

KEYWORDS: Induction of Labour, Postdated Pregnancy, Perinatal Morbidity, Perinatal Mortality, Maternal Risks

interventions to prevent it. The maternal risks include an increase in labour dystocia, an increase in severe perineal injury related to macrosomia and operative vaginal delivery and an increase in the rate of cesarean delivery and postpartum hemorrhage.⁹ The most frequent cause of prolonged pregnancy is inaccurate dating.¹⁰ The risk factors are primigravida, maternal genetic factors, prior postdatism, obesity and male gender of the fetus.¹¹

METHODOLOGY

This cross-sectional study was carried out in the Department of Obstetrics and Gynecology Hayatabad Medical Complex, a tertiary care hospital in Peshawar, Khyber Pakhtunkhwa, from June 2020 to June 2021. Patients were selected randomly. Those who attended antenatal OPD and patients admitted to the labour room, fulfilling the inclusion and exclusion criteria, were included in the study. Those who crossed the expected date of delivery, i.e. > 40 completed weeks, having regular cycles and were sure of dates, at least one 1st trimester ultrasound (dating scan) within 8-12 weeks of gestation, Uncomplicated singleton pregnancy with cephalic presentation and Patients having discrepancy of fewer than seven days in POG calculated LMP and dating scan were included in the study. Those patients were excluded having irregular cycles or who were not sure of dates, who did not have a first-trimester ultrasound (dating scan), a discrepancy of more than seven days in POG calculated LMP and dating scan, medical disorders (diabetic, hypertension, chronic renal disease, cardiac disease), obstetrical disorders – pre-eclampsia, eclampsia, pre-labour rupture of membrane, placenta previa, placental abruption, Congenital anomalies, Previous C/Section and Malpresentation. Approval from the institution's ethical committee was taken before starting the study. After random patient selection according to selection criteria, a preformed proforma was used to collect data regarding age, parity, booking status, and gestational age at the time of presentation (LMP / dating scan). Upon admission, detailed history was taken from the patient, GPE and systemic examination was performed, and on presentation, the vaginal examination was done to assess the Bishop score according to the modified Bishop scoring system. For patients who came in spontaneous labour, close fetomaternal monitoring was done using a partogram and CTG. Patients who were not in labour but completed 41 completed weeks of pregnancy were scheduled for routine labour induction according to the unit protocol. Methods of induction included sweep and stretch or formal induction with prostaglandin E1 analogue

(misoprostol) alone or in combination with an intracervical Foley Catheter, depending upon the parity and Bishop score of the patient. A total of 390 patients were included in the study. The primary outcome measures were to know the neonatal outcome in the form of neonatal morbidity and mortality and maternal morbidity and mortality. The secondary outcome measures were to know the mode of delivery regarding rates of vaginal delivery and cesarean section. The association of postdatism concerning age, parity and booking status was also studied.

RESULT

Table 1: Distribution of Cases According to the Age of the Patient

Age of the Patient in Years	No. of Patients	%age	
< 20	69	17.69%	
20 – 35	282	72.30%	
> 35	39	10%	
Gestational Age (by LMP / USG)	40 ⁺¹ – 40 ⁺⁶ weeks	197	50.51%
41 – 41 ⁺⁶ weeks	172	44.10%	
≥ 42 weeks	21	05.38%	
Gravidity	Primigravida	165	42.30%
Multigravida	225	57.69%	
Booking Status	Booked	27	06.92%
Unbooked	363	93.07%	
Mode of Delivery	Normal vaginal delivery	303	77.69%
Cesarean Section	76	19.485	
Instrumental Delivery	11	02.82%	
Indications of LSCS	Fetal distress	34	44.73%
Failure to progress	09	11.84%	
Failure to decent	08	10.52%	
Failed induction	11	14.47%	
On-demand	14	18.42%	

Table 2: Distribution of Babies According to A/G Score at 5 Minutes

Apgar Score	40 ⁺¹ – 40 ⁺⁶ weeks		41 – 41 ⁺⁶ weeks		≥ 42 weeks	
	No.	%age	No.	%age	No.	%age
>7	363	95.77	352	92.87	331	87.33
<7	16	04.22	27	07.12	48	12.66

Table 3: Perinatal Mortality 4.07%

Perinatal Mortality		40 ⁺¹ – 40 ⁺⁶ Weeks N(%)		40 – 40 ⁺⁶ Weeks N(%)		>42 Weeks (N%)	
		N	%	N	%	N	%
Perinatal Mortality	IUFD	02	0.51%	03	0.76%	05	01.28%
	Intrapartum death	0	0	01	0.25%	0	0
	Early neonatal death	0	0	01	0.25%	04	01.02%
Neonatal Morbidity	Birth asphyxia (HIE)	19	05.01%	27	07.12%	41	10.81%
	Hypoglycemia	11	02.90%	18	04.74%	23	06.06%
	MAS	14	03.69%	19	05.01%	31	08.17%
	Shoulder Dystocia	0	0	0	0	03	0.79%
	NICU Admission	17	04.48%	22	05.80%	47	12.40%
Maternal Morbidity	PPH	13	03.33%	16	04.10%	25	06.41%
	Perineal tears 3 / 4	0	0	0	0	01	0.25%
	Endometritis/fever	09	02.30%	17	04.35%	23	05.89%

DISCUSSION

The total deliveries that occurred in the study period were 3,705. Out of this, 390 postdated pregnancies were included in the study group according to inclusion and exclusion criteria. This makes the incidence of uncomplicated postdated pregnancy of 10.52%, which follows most of the studies done in the recent past. In the present study majority of the patients belonged to the age group between 20 - 35 years (72.30%), while 17.69% were below 20 years, and only 10% were above 35 years of age. These findings are consistent with the study by Anand N et al.¹², where most patients were between 20 - 30 years (68.82%) followed by < 20 years. Only 7.06% were above 30 years of age. This shows that age does not correlate with the incidence of postdatism. In the present study, most patients were multigravida (57.69%), while (42.30%) were primigravida. These findings are unlike the findings obtained from the study by Samad A et al.¹³ where most of the cases were primigravidae (51%) and (49%) were multigravida. This might show a changing trend in the incidence of postdatism in association with gravidity. In the present study, most of the patients were unbooked (93.07%), and only (6.92%) were booked, while a study by Anand N et al.¹² showed that 54.70% were unbooked and 45.29% were booked. It shows that booking status may impact the incidence of postdatism. In the present study majority of the patients were between 40⁺¹ - 40⁺⁶ weeks of gestation (50.51%), while (44.10%) were between 41-41⁺⁶ weeks of gestation, and only a minority were above 42 weeks of gestation (5.38%). These findings correlate with a study by Francis S et al.¹⁴ where the maximum number of patients was between 40⁺¹ to 40⁺⁶ weeks of gestation. In the present study majority of the patients underwent vaginal delivery, including spontaneous and induced labour (80.51%) and (19.48%) underwent cesarean section (including both emergency and elective cesarean section). Among vaginal deliveries (77.6 9%) were normal vaginal deliveries, and (2.82%) were instrumental deliveries. Similar results were obtained from a study by Malik S et al.¹⁵, where most patients had a vaginal delivery. In the present study, the

commonest indication for C/section was fetal distress (44.73%), followed by C/section on demand (18.42%). Alexander et al.¹⁶ studies also showed the same trend where fetal distress was the commonest indication for C/section followed by C/section done for failure to progress. In the present study, the overall fetal outcome was not bad as most of the babies had good Apgar scores > 7 at 5 minutes (overall >90%) which was gestation dependent. These were under the findings obtained from a study by Olesen AW et al.¹⁷, where 96% of the babies had an Apgar score greater than seven at 5 minutes, and 4% had an Apgar score less than seven at 5 minutes. In the present study, overall perinatal mortality is 4.07%. Perinatal mortality showed an increasing trend with increasing gestation. It was 0.51 % at a gestation between 40⁺¹ - 40⁺⁶ weeks, which increased to (1.26%) at 41-41⁺⁶ weeks of gestation and further increased to (2.30%) at gestation 42 weeks beyond. A similar trend was obtained from a study by Sara T Stock et al.¹⁸ where perinatal mortality was (0.07%) at (37-39⁺⁶) weeks, (0.18%) at 40⁺¹ to 40⁺⁶ weeks and (0.22%) at 41-41⁺⁶ weeks. Another study by Sudesh Agarwal et al.¹⁹ also showed gestation dependent increase in the perinatal mortality rate and NICU admission rate, with perinatal mortality of 3.3% and NICU admission of 9.8 % at 40⁺¹ - 40⁺⁶ weeks of gestation, 5.4 % and 10.7% at 41-41⁺⁶ weeks of gestation and 12.5% and 25% at and beyond 42 weeks of gestation respectively. In the present study, various parameters of neonatal morbidity such as birth asphyxia, hypoglycemia, Meconium Aspiration Syndrome (MAS), Shoulder dystocia and NICU admission rate all showed an increasing trend with increasing gestation beyond 40 weeks of gestation. These were 5.01%, 2.90%, 3.69%, 0% and 4.48% at gestation 40⁺¹ - 40⁺⁶ weeks and increased to 10.81%, 6.06%, 8.17%, 0.79% and 12.40% at and beyond 42 weeks of gestation respectively. The majority of the studies done in the recent past also showed a similar trend. A study by Dobariya PV et al.²⁰ showed that 9.52% had birth asphyxia (7.14%) had MAS, and 3.57% had Respiratory Distress Syndrome (RDS). In the present study, maternal morbidity in association with postdatism was also assessed, and our study

showed 3.33% cases of PPH, 2.30 % cases of endometritis and no case of shoulder dystocia at 40⁺¹ - 40⁺⁶ weeks of gestation while morbidity was increased with increasing gestation. There were 6.41% cases of PPH, 5.89% cases of endometritis and 0.25% cases of shoulder dystocia at and beyond 42 weeks of gestation. A study by Dobariya PV et al.²⁰ showed 5.95% cases of PPH and (3.57%) cases of endometritis. Universal provision of dating scans to all antenatal patients and timely implementation of a policy of induction of labour at 41 completed weeks of pregnancy may play a crucial role in decreasing the fetomaternal risks associated with postdatism.

LIMITATIONS

A sample size of this article is small.

CONCLUSION

Pregnancy continuing beyond 40 weeks has a definite risk to the fetus. The incidence of postdatism can be decreased by calculation of the accurate period of gestation by dating scan, which is carried out between 8-12 weeks of gestation, which is a non-invasive and readily available tool, thus omitting the need to rely on LMP alone which is not very reliable in our setup population.

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- Bushra Rauf** - Critical Revision; Supervision; Final Approval
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