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A STUDY ON THE EFFECTS OF SHORT INTERVAL OF PREGNANCY ON PERINATAL OUTCOME

[1]Naila Munawar, [1]Moiza Sheikh, [2]Tuba Afzal
[1]Foundation University Medical College, Islamabad
[2]Mohi Ud Din Islamic Medical College Mir Pur

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Abstract:
Objective: *The purpose of this research work was to find out the impacts of short interval of pregnancy on its outcomes.*
Methodology: *This study was a retrograde research work. Material of this research was birth records of hospital of last 3 years (2017-2019) in Benazir Bhutto Hospital Rawalpindi. Population of this research work were the females whose gestation interval was ≤ 2 years and week of gestation was over twenty-two weeks (N=2089). We evaluated the perinatal outcomes in terms of stillbirth, preterm birth and low weight at the time of birth.*
Results*: The average age of the females of this research was 26.70 ± 5.32 years. In accordance with the perinatal outcomes of females with interval of pregnancy of less than 2 years or lesser; 8.20% females delivered before thirty-seven week of gestation and stillbirth was the outcome in case of 0.30% females. The findings determined that 4.80% new born were present with low weight of body. We found no significant difference between short interval of pregnancy and preterm birth and/or stillbirth. But we found a positive difference between the low weight at the time of birth and short interval of pregnancy (P>0.050).*
Conclusion*: There is no effect of interval of pregnancy on perinatal outcomes as stillbirth and preterm birth but there was an important effect of short pregnancy interval on the low body weight of the neonate.*
KEYWORDS: *Mortality, Pregnancy, Interval, Preterm, Stillbirth, Low Birth Weight, Perinatal.*

Corresponding author:
Naila Munawar,
Foundation University Medical College, Islamabad
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INTRODUCTION:

WHO has stated that the pregnancy interval is the duration from date of delivery of preceding live-birth to the date of conception of next pregnancy in females present with more than one delivery [1]. There is high rate of complications in the pregnancies that have less than 2 years of duration. All these pregnancies are high risk pregnancies. There is particular importance of these pregnancies due to high risk of death or other illnesses during or after pregnancy or birth [2]. These issues are cause of adverse perinatal outcomes in both developing as well as developed countries [3]. There are many other studies in support of this particular view [4]. There is association of the short interval of pregnancy of less than eighteen months with adverse perinatal outcomes like LBW (Low Birth Weight), stillbirth, mortality of baby and preterm birth [5]. Babies having less than 2500 grams weight are thought to be with LBW [6].

Less duration between 2 pregnancies is the cause of improper renovation of the nutrient depot of mother and leads to born a baby with much less weight [7]. The chance of LBW is 22.80% in short interval of pregnancies as compared to normal interval of pregnancies (12.10%) [8]. Less pregnancy interval is also an important factor behind preterm delivery [9]. Short interval can lead to preterm birth rising the insufficiency of cervix and other infections [10]. There is prevalence of preterm birth up to 5.0% to 7.0% live birth in modern countries [11]. According to the reports, frequency of preterm birth of less than 37 weeks was much high in females with short interval of pregnancy (20.10%) as compared to the females with normal interval of pregnancy (7.70%) [12].

There is very high risk of neonatal mortality because of short interval of pregnancy. There was 3 to 4 times increase of perinatal mortality in the females with interval of less than twelve months between 2 pregnancies, whereas there was two times increase in the mortality of infants [13]. Optimal interval of pregnancy (2 years) was the considered significant and cut-off point in current research work. The purpose of this research work was to find out the effects of short interval of pregnancies on the perinatal outcomes.

METHODOLOGY:

The study is retrograde research work. This study utilized the records of birth in Benazir Bhutto Hospital Rawalpindi of last 3 years. All the females with pregnancy who fulfilled the criteria of this research work in that particular period (N=2089) were included. The interval of gestation of pregnant females with two years and gestational pregnancy week of 22 weeks were the inclusion standard of this research work. We collected the data with the utilization of a form comprising 21 questions. In this research work, we assessed 3 perinatal outcomes: LBW (less than 2500.0 gram), stillbirth and preterm birth. Chi square test, percentage, distribution and number were utilized for assessment of collected data. Ethical committee of the institute gave the permission to conduct this research work.

RESULTS:

The duration of time interval between 2 pregnancies in 55% females in this study was less than 2 years. Average age females in this research work was 26.70 ± 5.32 years. Pregnancy number for 44.40% females was two and 52.90% females were present with two live births. About 3.70% females of study population were present with chronic diseases and 9.80% females were present with habit of cigarette smoking (Table-1).

Table-I: Descriptive Characteristics of Women by Pregnancy Interval

Characteristic		Pregnancy Interval				Total	
		2 years		<2 years			
		Number	%	Number	%	Number	%
Age Mean ± SD: (26.7+5.32) Min:16 Max:45	16-25	420	42.8	562	57.2	982	47
	26-35	452	47.4	501	57.6	953	45.6
	36-45	68	44.2	86	55.8	154	7.4
Pregnancy number	2	435	46.9	493	53.1	928	44.4
	3	262	44.6	325	55.4	587	28.1
	4	132	43.9	169	56.1	301	14.4
	5 and above	111	40.7	162	59.3	273	13.1
Number of live births	1	34	15.3	188	84.7	222	10.6
	2	528	47.7	578	52.3	1106	52.9
	3 and above	378	49.7	383	50.3	761	36.5
The presence of chronic disease	Yes	30	39	47	61	77	3.7
	No	910	45.2	1102	54.8	2012	96.3
Smoking	Yes	91	44.4	114	55.6	205	9.8
	No	849	45.1	1035	54.9	1884	90.2
Total		940	45	1140	55	2089	100

** Column percentage is given.

Birth was the result in 84% females in previous pregnancies. Gestation period for 0.80% females was 33 weeks or less according to ultrasonography. About 1.10% females were present with diseases induced because of pregnancy. There were 36.70% pregnant females suffering from anemia (value of hemoglobin was less than 11 g/dl) (Table-2).

Table-II: Pregnancy Characteristics of Women by Pregnancy Interval

Characteristic		Pregnancy Interval					
		2 years		<2 years		Total	***
		Number	%	Number	%	Number	%
The shape of the previous pregnancy termination	Birth	872	49.8	880	50.2	1752	83.9
	Aborts	68	20.2	269	79.8	337	16.1
Gestational Age* (USG) Mean±Sd (39.10±1.50) Min: 23.00. Max:42.60	23-27	-	-	3	100	3	0.1
	28-33	4	28.6	10	71.4	14	0.7
	34-39	637	45.9	750	54.1	1387	67.4
	40- 42	282	43.1	372	56.9	654	31.8
Pregnancy-Induced Disease	Evet	10	41.7	14	58.3	24	1.1
	Hayir	930	45	1135	55	2065	98.9
Hemoglobin value Mean±Sd (11.54±1.52) Min:7.20 Max:18.90	7.20-9.00	51	44	65	56	116	5.6
	9.10-11.00	323	49.8	326	50.2	649	31.1
	11.10-13.00	451	44.7	558	55.3	1009	48.3
	13.10	115	36.5	200	63.5	315	15.1
Total		940	45	1140	55	2089	100

*31 people have a missing data. ** Column percentage is given.

According to the characteristics of the neonates of this study; 99.70% were alive, 99.50% neonates were singular and 48.60% neonates were of female gender. Body weight of 0.70% new born was 2000 grams or less; 23.80% neonates were shorter than the normal ones. 1st minute of APGAR score of 0.90% infants was from 0 to 6 and 5th minute APGAR score of 0.40% neonates was from 0 to 6. There was need of intensive care for 8.70% neonates (Table-3). There was no effect of the low pregnancy interval on the preterm birth and/or stillbirth, however, it has a significant impact on the body weight at the time of birth (Table-4, P<0.050).

Table-III: Descriptive Properties of The Newborn by Pregnancy Interval

Characteristic		Pregnancy Interval				Total**	
		2 years		<2 years			
		Number	%	Number	%	Number	%
Number of babies	Singular	935	45	1144	55	2089	99.5
	Plural	5	50	5	50	10	0.5
Whether the baby is living	Live	942	45	1151	55	2093	99.7
	Dead	3	50	3	50	6	0.3
The gender of the baby	Female	420	41.4	597	58.6	1017	48.6
	Male	525	48.4	557	51.6	1082	51.4
Baby weight	2000g and below	7	35.7	9	64.3	16	0.7
	2010-2500g	27	30	56	70	83	3.8
	2510g and above	916	45.7	1084	54.3	2000	95.5
Baby's length	47 cm and below	211	42.4	296	57.6	507	23.8
	48 cm and above	729	45.8	863	54.2	1592	76.2
Apgar score (1 min)	0-6	14	41.2	20	58.8	34	0.9
	7 - 10	931	45.1	1134	54.9	2065	99.1
Apgar score (5 min)	0-6	8	61.5	5	38.5	13	0.4
	7 - 10	937	44.9	1149	55.1	2086	99.6
Baby's intensive care	Yes	72	37.4	118	62.6	190	8.7
	No	870	45.7	1033	54.3	1903	91.3
Total	945	45	1154	55	2099	100	

** The percentage of column is given.

Table-IV: Evaluation of The Effect of Pregnancy Interval on Perinatal Outcomes

Characteristic		Pregnancy Interval						Test value*/p	
		2 years		<2 years		Total	**		
		Number	%	Number	%	Number	%		
Preterm birth	<37 week	105	61.4	66	38.6	171	8.2	3.08	0.07
	>37 week	1044	54.4	874	45.6	1918	91.8		
Stillbirth	Yes	3	50	3	50	6	0.3	0.06	0.8
	No	1146	55	937	45	2093	99.7		
Low Birth Weight	Below 2500g	65	69.1	29	30.9	94	4.5	7.95	0
	above 2500g	1084	54.3	911	45.7	1995	95.5		
Total		1149	55	940	45	2089	100		

* The Pearson Chi-squared test value, ** The percentage of column is given.

DISCUSSION:

This research work stated that 55.0% females became pregnant in lower than 2 years. In one research work on the interval of pregnancy conducted in Israel, it was stated that interval of pregnancy lower than 2 years was 54.10% [14]. In one other prospective research work, 26.50% females were present with repeat within eighteen months [15]. It was discovered that this particular rate was 18.80% when the reevaluation of research data carried out according to interval of gestation of eighteen months. The results of these researches are consistent with associated field. 84% previous pregnancies of females result in live birth. In one other relevant research work, 89.50% pregnancies gave births [16]. In other research work, 8.20% births occurred prior 37 weeks. Findings concluded that short interval of pregnancy did not have any impact on preterm birth and this is consistent with other study [17].

Different research works discovered that short interval of pregnancies has association with the rates of preterm births, conducted in Tanzania & Canada [18]. other research work conducted in Pakistan was present with opposite results which stated that that there was no impact of pregnancy interval on preterm birth [19], similar with the findings of this research work. This research work found out that 0.30% females were present with stillbirth and there was no impact of pregnancy duration on the stillbirth. There were about 3.20 stillbirths per one thousand births in whole world every year. The highest number of stillbirths as 32 /1000 births occurred in South Asia & Africa [20]. But in many modern countries as UK and USA, rate of stillbirth is less than 5/1000 deliveries. The rate of stillbirth in Pakistan is 1/1000 deliveries.

The rate of stillbirth in Turkey is on the similar level of rate present in modern countries of the world. The rate of stillbirths which was concluded in current research work is much low as compared to the rate of stillbirth present in other studies. The collected data of this current research work was a data of single hospital from only last 3 years, therefore, it can be supposed that there is no important association between short interval of pregnancy and rate of stillbirths. It was stated that there was presence of 4.80% infants with the LBW and we noticed that there was impact of short gestational duration on the birth weight of neonates. In accordance with the findings of data of health survey conducted in Pakistan in 2013, it was concluded that 10.0% of children were known for LBW [21]. Zhu concluded that females with low interval of pregnancy were having high risk of LBW in their babies [22]. The results of the research works performed in Egypt, Iran and Turkey have stated the similar findings.

CONCLUSION:

In this research wok, we investigated the short pregnancy interval on the perinatal outcomes. There is no effect of the pregnancy interval on the perinatal outcomes like stillbirth and preterm birth. But there was an important impact of the low duration of pregnancy on the body weight at the time of birth. There is need to increase the knowledge to take proper contraceptive medicines and enhancing the awareness of these females about the perinatal results for the betterment of both mothers as well as their babies. The only limitation of this research work was that it was conducted in a single clinical center.

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