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Risk Factors and Pregnancy Outcome of Preterm Labor

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Abstract: *Preterm labor is an increasingly common complex condition with multiple risk factors and has substantial medical, psychological, economic and social impacts. It is the leading cause of infant morbidity and mortality in the United States. Compared with term neonates, mortality rates for preterm (less than 37 weeks) and very preterm infants (less than 32 weeks) are 15-fold and 75-fold higher respectively.* ***The aim*** *of this study is to; determine the risk factors associated with preterm labor and compare pregnancy outcomes between women with preterm labor and those with term labor.* ***A case-control design*** *was selected in carrying out this study and a representative sample of 300 parturient women (150 with preterm labor and 150 with term labor) were recruited for this study.* ***The tools*** *used for data collection were; a structured interview sheet, a clinical assessment form, a summary of labor sheet and a neonatal assessment sheet.* ***The results*** *of the present study revealed that the risk of having preterm labor was significantly increased with maternal age 35 years old and more (p=0.001). In addition, PPROM, multiple gestations, previous PTL and previous abortion were risk factors associated with PTL. Preterm labor also resulted in more CS, primary postpartum hemorrhage and retained placenta. Their newborns had lower Apgar score, very low birth weight, low birth weight, RDS, and more admission to the NICU.* ***It can be concluded that;*** *preterm labor was associated with considerable maternal and neonatal morbidity and mortality.* ***The study recommended that;*** *the nurse should discuss with vulnerable women, preterm labor signs and symptoms, risk factors, the causes of morbidity and mortality of preterm infants, provide counseling and intervention whenever needed beyond simply giving pregnant women a handout or a pamphlet on measures for the prevention of this problem.*

Keywords: *Preterm labor, risk factors, outcome.*

I. Introduction

Preterm labor (PTL) which is the delivery before 37 completed weeks of gestation,[(29)] presents a major public health problem, and is a primary cause of neonatal death, with an estimated 15 million births, or 11.0% of all births worldwide, occurring preterm.[(12)] Approximately 90.0% of these preterm births are concentrated in developing countries, with 11 million (85.0%) in Africa and Asia and 0.9 million in Latin America and the Caribbean.**[(10)]** Premature births are the cause of 27.0% of annual infant mortality worldwide, 70.0% of prenatal mortality in developing countries, and 50.0% of neurological disorders.**[(16)]**

In 75.0% of preterm labor cases, no obvious causes have been established, but some risk factors have been identified**.** Obstetric risk factors include; cervical incompetence, multiple gestations, short birth intervals, history of abortion, premature rupture of membrane; and previous preterm labor. Meanwhile, maternal complications such as; infectious diseases and hypertension are the most common direct causes of preterm delivery. Bleeding during pregnancy, polyhydramnios or oligohydramnios, fetal anomalies especially involving multiple organ systems and central nervous system abnormalities, maternal abdominal surgery in late second or third trimester, are associated with a higher rate of preterm delivery.**[(28)]**

Non obstetric risk factors include**;** maternal age of < 20 or > 35 years, poor socioeconomic status, maternal malnutrition and illiteracy, cigarette smoking, and trauma. Other medical conditions (diabetes mellitus, urinary and genital tract infections) have also been associated with preterm labor. **[(25)]**

Signs and symptoms of active preterm labor include; increased bloody show, uncontrollable urge to push/bear down, separation of labia, bulging perineum and rectum, crowning of presenting part and women states that birth is active**.[(6)]**

Preterm labor may result in several complications, such as; respiratory distress syndrome, low birth weight, intra-ventricular hemorrhage, cerebral palsy, neurological complications in newborns, retained placenta, increased rate of CS and increased cost of delivery expenditure. **[(10)]** The long-term maternal mental health outcomes following preterm labor revealed high and prolonged levels of maternal psychological distress, anxiety and trauma-related stress reactions.**[(26)]**

Maternity nurses have a responsibility to provide women's holistic health care. Risk assessment and management of preterm labor is a very important aspect of holistic health care, which needs to be promoted. The nurse midwife in particular can play a crucial role as case finder, educator and counselor regarding preterm labor and its management. Therefore, the present study is conducted to determine the risk factors associated

with preterm labor and compare pregnancy outcomes between women with preterm labor and those with term labor in the Maternity and Childhood Hospital at Zagazig University Hospitals.

II. Aim Of The Study

The aim of this study is to; determine the risk factors associated with preterm labor and compare pregnancy outcomes between women with preterm labor and those with term labor.

III. Subjects And Methods

Research design:
A case-control design was adopted in this study**.**

Setting:
The present study was conducted at the labor unit in the Maternity and Childhood Hospital at Zagazig University Hospitals.

Subjects:
The sample size was estimated according to [28] using a power of 80% to detect a significant effect of young maternal age as a risk factor for preterm labor with odds ratio (OR) worth detection = 2.0, prevalence of young age women among controls = 60.6% and Alpha error = 0.05. Thus the total sample size was 300 parturient women. The study subjects were randomly divided into two equal groups of 150 parturient as: Case group: women with preterm labor group, 28 to 36 wks+6 days (n=150) and Control group: women with term labor group, 37 to 41wks+6ays (n=150).

Inclusion criteria:
1. Parturient women diagnosed with PTL (for the case group) whether spontaneous or induced (indicated, iatrogenic).
2. Parturient women diagnosed with term labor (for the control group) whether spontaneous or induced.

Exclusion criteria:
1. Intra uterine fetal death (IUFD).
2. Threatened preterm labor i.e. patients who respond to medical management and discharged from the hospital.

Tools of data collection
Data collection was done through the use of the following tools:

I) a structured interview sheet (Appendix I)
The questionnaire was designed to collect data from parturient women in both groups regarding to:

- **Socio-demographic data such as:** age, education, occupation, residency and family income.
- **Medical and surgical history:** it included data about the presence or absence of diabetes mellitus, chronic hypertension, renal disease, cardiac disease, and anemia and the presence or absence of any surgical operation.
- **Family history:** it included data about the presence or absence of the following diseases: diabetes mellitus, hypertension, congenital anomalies, preterm labor and multiple gestations.
- **Gynecological history** it included data about the presence or absence of previous history of infertility, assisted reproductive technology (ART), any gynecological operation, history of cervical incompetence and cervical cerculage.
- **Obstetrical history**: such as gravidity, parity, number of previous abortion, mode of termination of previous abortion, inter-pregnancy interval, types of previous deliveries, history of previous PPROM and history of previous preterm labor if present.
- **Current pregnancy data** which included data about history of antenatal care, hospital admission, and causes of hospitalization during pregnancy, associated problems encountered on admission to labor room and maternal life style during current pregnancy.
- **II) Clinical assessment sheet "on admission to labor room" (Appendix II)**

These include data about the general examination, local abdominal and per-vaginal examination. **CTG** was done for evaluation of the fetal heart rate and uterine contractions. Meanwhile, **Ultrasonography** evaluated fetal gestational age, number of fetuses, presentation, amniotic fluid index, placenta localization, fetal presentation and presence of any congenital anomalies. **Laboratory investigations** were also done to determine complete blood count (CBC) hemoglobin level (Hb) and Rh compatibility.

III) Summary of labor sheet (Appendix III)

It included data about type of preterm labor whether spontaneous or induced, mode of delivery, indication of CS and condition of perineum. It also included data about the presence or absence of maternal complications such as: primary postpartum hemorrhage, retained placenta, administration of IV blood transfusion and hysterectomy.

IV) Neonatal assessment sheet: (Appendix IV)

For evaluation of the immediate neonatal condition, the following data was obtained: Neonatal APGAR score that developed by **Apgar,**[9] at first minute and fifth minutes , birth weight and neonatal complications such as; asphyxia, respiratory distress syndrome, need for resuscitation, admission to Neonatal Intensive Care Unit (NICU) and neonatal death.

Administrative and ethical consideration

An official permission was granted by submission of an official letter from the Faculty of Nursing to the responsible authorities of the study setting to obtain their permission for data collection. All ethical issues were taken into consideration during all phases of the study; the researcher maintained an anonymity and confidentiality of the subjects. The inclusion in the study was totally voluntary. The aim of the study was explained to every woman before participation and a verbal agreement was obtained after each woman was assured that the study maneuver will cause no actual or potential harm to her or her baby. Also, they were assured that professional help will be provided for them and for their baby whenever needed. Women were notified that they can withdraw at any stage of the research; also they assured that the information obtained during the study will be confidential and used for the research purpose only.

Pilot study:

A pilot study was carried out on 30 parturient women (who were excluded from the sample) to assess the clarity and applicability of the data collection tools, arrangements of items, estimate the time needed for each sheet and the feasibility of the study and acceptance to be involved in the study. Necessary modifications were undertaken.

Field study:

Collection of data covered a period of six months "from the first of June 2014 to the end of November 2014". After getting the official permission, the pilot testing of the study tools was done and analyzed. The researcher interviewed the parturient women and explained the purpose of the study and obtained their verbal agreement. The researcher started to collect data through three phases:

1)Interviewing Phase:

The researcher attended the labor ward at the study setting on the hot three days (Saturday, Monday, and Wednesday) per week during morning and afternoon shifts for six months. All parturient women in both groups were interviewed to collect data related to socio-demographic characteristics, obstetric profile, family history for chronic diseases, present medical history. Patient's medical record was also reviewed to obtain other pertinent information.

2) Assessment Phase:

In this phase, the researcher together with the on- duty physician started regular assessment of the maternal and fetal condition. General, local abdominal and per-vaginal examination and investigations were all done and pertinent data was recorded. The diagnosis of preterm labor was determined by physician. Gestational age was confirmed by ultrasound. Fetal monitoring by CTG was done for every studied woman throughout labor. The obstetrician was present at all times in order to manage any problem that can happen such as; none reassuring fetal heart rate patterns. Mode of delivery, type and indication of CS, and maternal complications were also recorded. Neonatal assessment was done through measuring the Apgar score at first and five minute, birth weight, as well as complications encountered was also recorded

Statistical design:

After the collection of data, it was revised, coded and fed to statistical software SPSS version 20. The given graphs were constructed using Microsoft excel software. All statistical analysis was done using two tailed tests and alpha error of 0.05. P value less than or equal to 0.05 was considered to be statistically significant.

IV. Results

Table 1 indicates that women who had preterm labor were more likely to be 35 years old and more (21.4%) compared to 4.0% of women who had term labor. Difference observed is statistically significant. In addition they had higher percentage in history of infertility, ART and cervical incompetence and cervical cerculage compared to those in the term labor group. Differences observed are statistically significant.

Table 2 shows that nulliparous and multiparous who had 4 para and more were significantly more likely to have preterm labor compared to the control group. The same table also indicates that they had experience history of previous abortion and preterm labor as well as short inter-pregnancy interval (6 to less than 12 months) in contrast to the control group. Differences observed are statistically significant. As regards family history of PTL, it is obvious that 33.3% of women who had preterm labor had family history of preterm labor compared to only 3.3% of women who had term labor. Difference observed is statistically significant.

Figure 1 illustrates that the most common cause of hospitalization among PTL group during current pregnancy was PPROM followed by PIH and Oligohydramnios (45.0%, 35.0% & 35.0% respectively). **Table 3** shows that fetal distress and IUGR were the most common fetal problems encountered on admission to labor room among the case group. Meanwhile, PPROM, hypertensive disorder of pregnancy, multiple gestations, APH and polyhydaminous were the most common maternal problems encountered among the same group. Differences observed are statistically significant.

Figure 2 demonstrates that women in PTL group were more likely to have mild and severe anemia compared to the control group with statistically significant Difference. **Table 4** points that more women in PTL group were exposed to blood transfusion, primary postpartum hemorrhage, retained placenta and ICU admission compared to those in the control group (20.0%, 8.7%, 2.7% & 2.7% vs. 4.0%, 0.0%, 0.0% & 0.0% respectively). Statistically significant was observed in **table 5** concerning the mean Apgar scores at the first and fifth minutes (4.3 ±2.1, 5.8±2.2 vs. 7.2±1.1, 8.7±0.9 respectively) and birth weight (2.1±0.8 vs. 3.1±0.4 respectively).

V. Discussion

Preterm labor is an increasingly common complex condition with multiple risk factors and has substantial medical, psychological, economic and social impacts.**(5)** It is the leading cause of infant morbidity and mortality in the United States. Compared with term neonates, mortality rates for preterm (less than 37 weeks) and very preterm infants (less than 32 weeks) are 15-fold and 75-fold higher respectively. **(24)**

Several factors have been identified that are associated with preterm birth. These include; previous preterm birth, PROM, intrauterine inflammation, infection, uterine over-distension, utero placental ischemia, hemorrhage. It is also related to disorders caused by or associated with pregnancy such as; pregnancy induced hypertension, preeclampsia and eclampsia, as well as gyne-obstetric conditions as uterine, cervical, and placental abnormalities as placenta previa and abruption placenta. **(35)**

The maternity nurse should recognize that recent published global action report on preterm birth clearly outlines that prevention of preterm birth must be accelerated through family planning, improved quality of care before and during pregnancy and between pregnancies, and strategic investments in research and innovation.**(40-27)** Therefore, this study is intended to determine the risk factors associated with preterm labor and compare pregnancy outcomes between women with preterm labor and those with term labor.

Among the factors that may be associated with preterm labor are the socio-demographic characteristics of the mother such as; age and educational level. Young and advanced maternal age have been associated with the risk of preterm delivery. This is partially in coherence with **Carter et al.,** (13) in Texsas who have similarly reported in their previous quoted retrospective study that maternal age <17 and >35 increased the risk. Similar finding was also reported by **Marisa et al., & Tepper.** (23-38) A possible explanation of the above finding was provided by **Abu Hamad et al.,** (1) that a maternal age ≥35 year is linked to the occurrence of medical complications of pregnancy. The more advanced the maternal age, the more likely the pregnant woman is to develop pregnancy-related diseases such as; pregnancy-induced hypertension and renal diseases that increase the risk of preterm birth, whether induced or spontaneous. Also it could be attributed to the hormonal factors associated with advancing maternal age.(30)

The presence of cervical incompetence and cervical circulage (whether they were in the previous or current pregnancy) were significantly associated with PTL. In these conditions sometimes emergency delivery happens in the absence of labor pain or any warning sign, which is more dangerous because the delivery cannot be stopped or delayed through the administration of corticosteroid therapy, so premature babies in this category have a high mortality and morbidity due to respiratory problems and intracranial hemorrhage. **(35)**

Parallel with the present study findings **Derakhshi and Esmailnasab, (14) & Alijahan et al., (4)** found that treatment for infertility (hormonal therapy and IVF or ICSI) increased the risk for preterm birth. They explained this by the fact that when women conceive after medical intervention the health providers tend to be anxious about the fetus and prefer to induce the pregnancy before it reaches full term, as a way of avoiding undesirable pregnancy outcomes.

Concerning the women's obstetrical history the present study revealed that there was no significant association between the number of gravida and PTL. This finding is consistent with **Derakhshi et al., [15]** in Iran who found no statistically significant difference in the number of previous pregnancies, between the two groups. On the other hand nulliparas and women who had 4 para and more were significantly more likely to have preterm labor compared to the control group (p=0.020). In the same vein **Heaman et al., [18],** reported that multiparity has a significant association with preterm labor, which may be due to a range of side effects associated with the number of previous pregnancies.

The present study has demonstrated that significantly more women in the PTL had history of abortion compared with those in the control group (p=0.001). This is in accordance with the findings of **Alijahan et al., [4]** who conducted a case control study to determine prevalence and risk factors associated with preterm birth in Ardabil, Iran. They found that women with previous experience of abortion significantly were more likely to deliver preterm infant.

Previous PL is also an important determinant regarding the high incidence of current PTL. In the present study, a history of a previous PL increases the risk of recurrent PL. This is matching with the findings of several studies. The mechanism for this has not been well understood, however, the likelihood of such experience among the women with prior spontaneous labor as well as those with inducing preterm birth is rising.

A statistically significant difference was noticed between women in the case and control groups regarding pregnancy interval with higher percentage of short inter-pregnancy interval (6 to less than 12 months) among women in the PTL group. This is in conformity with **Bavaliya et al., [9]** study of 100 preterm cases and 100 controls who found that short inter pregnancy interval (38%) was associated with an increased risk of prematurity. In this respect **Smith et al., [36]** stated that although the mechanism is not clear; one potential explanation is that the uterus takes time to return to its normal state, including resolution of the inflammatory status associated with the previous pregnancy.

The present finding concerning women hospitalization during current pregnancy is in congruence with **Alijahan et al.,[4]** who found that women in the PTB group (18.2%) were more significantly likely to be hospitalized during their pregnancy than those in the control group (9.5%). **Derakhshi and Esmailnasab,[14]** added that the most common cause of women hospitalization was urinary tract infections.

As shown in the present study, women in PL group had significantly higher rates of fetal distress. Similarly **Ananthi and Vintzileos,[7]** study in the USA found that the most frequent indications prompting an intervention at preterm gestational ages include; preeclampsia, placental abruption, intrauterine growth restriction, and fetal distress. However, these conditions may also predispose to spontaneous onset of labor at preterm gestational ages. Unlike the current finding, **Rao et al.,[33]** found no significant association between PTB and fetal distress which may be related to the difference in the selection of the research design and women characteristics. The present study confirms the association of PL with the presence of IUGR, PPROM and chorioamnionitis. Furthermore, this result is also corroborated with those reported by other studies conducted in Finland, Italy, Brazil, Ireland, and Taiwan. [31, 34 32] Moreover **Heitmann,[19]** concluded that, the presence of rupture membrane was the best predictor of preterm birth within 48 hours, it does not only increase the risk of microbial invasion but also stimulates the uterine contractions.

In agreement with the present study findings extremes in the volume of amniotic fluid oligo or polyhydramnios are associated with preterm labor.[33] Although the association with oligo-hydraminous was not statistically significant in the present study. Meanwhile, hypertensive disorders of pregnancy increased the risk of preterm birth. This is relatively in accordance with **Huang et al., [20]** who highlighted that hypertensive disorders of pregnancy were the most common risk factors of PL. The mechanism for this finding may be related to the reduction of placental blood flow, which should affect the exchange of nutrients and oxygen between the mother and fetus. This would result in decreased fetal growth and increase the risk of abnormal pregnant outcomes, such as IUGR, low birth weight, and preterm birth**. [20]**

Multiple gestations (twins, triplets, and quadruplets) in the current result were found to have a positive effect on PL (p=0.001). This corresponds well with the findings of **Renzo et al., [34]** whose result showed that multiple pregnancies were associated with the PL. The agreement among the various studies addressing the above mentioned multiple gestations and the present one has been attributed to the fact that over distension of the uterus, increase intrauterine volume, or related complications such as; cervical incompetence which may lead to preterm labor, mal-presentation and indicates CS. [35] Meanwhile, the widespread availability of ART has resulted in a large increase in the incidence of multiple gestations, higher circulating levels of relaxin associated with super ovulation which may cause cervical insufficiency, with subsequent PTB. [33]

Ante partum hemorrhage is responsible for one fifth of cases, and was mainly due to PP and AP. This could be explained by the fact that the decidual hemorrhage initiates the uterine contractions through stimulating the prostaglandin formation. Also vaginal bleeding as an indication of serious consequences of pregnancy may cause fetal or maternal emergencies leading to induced preterm birth **Raisanen et al., [32]**

support such findings. Recently, **Sarhan and Anini, [35]** study reported that APH was responsible for 28% of cases. Unlikely, **Rao et al., [33]** found no association between APH and preterm birth. Concerning women gestational age, late preterm (34 to <37 weeks) was the most common GA and women in the PTL group were significantly more likely to have breech presentation and anemia. Similarly, **Ali et al., [3]** found a significant association between breech presentation and PTL. Moreover, **Bavaliya et al., [9]** concluded, that clinical anemia was found to be a significant risk factor of PTL.

Strong association was also observed between the presence of PTL and the PPH, as well as the need for blood transfusion (P=0.001). This is in coherence with **Kramer et al., [22]** who found that women gestational age < 32 weeks were more likely to have severe PPH. While, **Wazed et al., [39]** reported that 4% of maternal complications in preterm CS was PPH. The interpretation for these results was due to maternal condition during pregnancy as well as prenatal diagnosis and selected management at the time of delivery.

Four patients in the PTL group were, exposed to retained placenta. This is explained by the fact that preterm placenta covers a relatively larger uterine surface than the term placenta and as a result, expulsion of the preterm placenta may require more uterine work and time, predisposing to retention. This is matching with the findings of **Akinola et al., [2]** who reported that one of the logistic regression analyses of risk factors for retrained placenta was preterm delivery. Moreover, the mean Apgar scores at the first and fifth minutes were significantly lower among the newborns of the PTL women than those in term labor group (p=0.001) and they had higher percentage asphyxia (p=0.001). Similar finding was reported by **Gupta, [17]** who reported that the most prevalent complication of preterm labor reported in infants was asphyxia. Recently , **Ali et al., [3]** in Port Said and **Svenvik et al., [37]** found that the mean Apgar scoring at 1 and 5 minutes among the case group was significantly lower than that of the control group (p=0.000).

VI. Conclusion

The risk of having PL was increased with the increase of maternal age, illiteracy, insufficient family income. Women were significantly more likely to have history of infertility and use of ART, history of previous D & C, PTL, cervical incompetence and cervical circulate, and family history of PTL. Nulliparity and high parity, previous abortion, short inter pregnancy interval, previous CS were also risk factors for preterm labor.

Women who had preterm labor were significantly more likely to encounter PPROM, hypertensive disorders of pregnancy, APH, multiple gestations, chorioamnititis, fetal distress, cervical incompetence and cervical circulage, IUGR, polyhydramnios during their current pregnancy. In addition, more likely to have maternal and fetal problems.

VII. Recommendation

The nurse should discuss with vulnerable women preterm labor signs and symptoms, risk factors, provide counseling and intervention whenever needed beyond simply giving pregnant women a handout or a pamphlet. She should focus on reducing modifiable risk factors, together with medical factors that are associated with PTL e.g infection, PIH, abortion.

Further research is recommended in order to examine the clarity in the types of preterm labor, including gestational age and distinguishing between spontaneous preterm labor and indicated preterm labor. Additional research must be conducted to gain insight and fill in gaps where current population data is lacking on medical indicators and risk factors.

Table 1:Distribution of the Studied Women According to theirs Socio –Demographic Characteristics and Gynecological History (n=300)

Socio demographic Characteristics and Gynecological History		Groups				X^2 (P)
		Cases (PTL) (n=150)		Controls (Term labor) (n=150)		
		No.	%	No.	%	
Age (years)						
▪ <20		11	7.3	14	9.3	21.6 (0.001)*
▪ 20-		42	28.0	51	34.0	
▪ 25-		36	24.0	51	34.0	
▪ 30-		29	19.3	28	18.7	
▪ 35+		32	21.4	6	4.0	
Range		17-43		16-39		t=3.3 (0.001)*
Mean ± SD		27.7±6.3		25.5±4.8		
▪ History of infertility	No	122	81.3	136	90.7	0.020*
	Yes	28	18.7	14	9.3	
▪ History of (ART)	No	134	89.3	144	96.0	0.027*
	Yes	16	10.7	6	4.0	
▪ History of cervical incompetence and history of cervical cerclage	No	129	86.0	150	100.0	0.024*
	Yes	21	14.0	0	0.0	

Table 2: Distribution of the Studied Women According to their Obstetrical and Family History (n=300)

Obstetric history		Groups				X^2 (P)
		Cases (PTL) (n=150)		Controls (Term labor) (n=150)		
		No.	%	No.	%	
▪ Gravidity	Primigravida	41	27.3	41	27.3	5.5 (0.064)
	2-4	84	56.0	97	64.7	
	5-9	25	16.7	12	8.0	
Range		1-9		1-9		t=1.9 P=0.055
Mean ±SD		2.9 ± 1.9		2.6 ± 1.5		
▪ Parity	Nulliparas	11	10.1	3	2.8	9.8 (0.020)*
	Para one	36	33.0	47	43.1	
	2-3	49	45.0	54	49.5	
	4-5	13	11.9	5	4.6	
Range		0-5		0-5		Z=0.07 P = 0.939
Median		1.0		1.0		
▪ History of abortion	No	54	49.5	83	76.1	16.5 (0.001)*
	Yes	55	50.5	26	23.9	
▪ History of preterm labor	No	67	61.5	104	95.4	36.2 (0.001)*
	Yes	42	38.5	5	4.6	
▪ Inter pregnancy interval (months)	6-	47	43.1	10	9.2	32.9 (0.001)*
	12-	24	22.0	33	30.3	
	24 +	38	34.9	66	60.6	
Range		6-132		6-174		Z=4.8 P=0.001*
▪ Family history of preterm labor	1	100	66.7	145	96.7	0.001*
	2+	50	33.3	5	3.3	

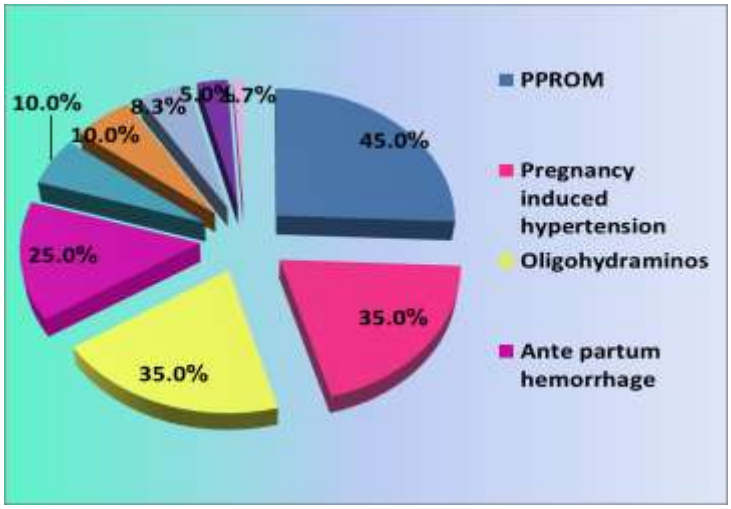

Figure 1: Causes of Hospitalization A mong Women in PTL Group During Their Current Pregnancy (n=60).

Table 3: Distribution of the Studied Women According to Associated Problems Encountered on Admission to Labor Room (n=300)

Associated Problems Encountered on Admission to Labor Room		Groups				X^2 (P)
		Cases (PTL) (n=150)		Controls (Term labor) (n=150)		
		No.	%	No.	%	
Fetal distress	▪ No	123	82.0	136	90.7	0.029*
	▪ Yes	27	18.0	14	9.3	
Intrauterine growth retardation(IUGR)	▪ No	137	91.3	150	100.0	0.001*
	▪ Yes	13	8.7	0	0.0	
Preterm premature rupture of membrane(PPROM)	▪ No	83	55.3	147	98.0	0.001*
	▪ Yes	67	44.7	3	2.0	
Oligohydramnios (AFI≤5)	▪ No	108	72.0	117	78.0	0.230
	▪ Yes	42	28.0	33	22.0	
Hypertensive disorders of pregnancy	▪ No	117	78.0	139	92.7	0.001*
	▪ Yes	33	22.0	11	7.3	
Multiple gestations	▪ No	119	79.3	145	96.7	0.001*
	▪ Yes	31	20.7	5	3.3	
Ante partum hemorrhage	▪ No	120	80.0	144	96.0	0.001*
	▪ Yes	30	20.0	6	4.0	
Polyhydramnios (AFI ≥25)	▪ No	146	97.3	150	100.0	0.044*
	▪ Yes	4	2.7	0	0.0	

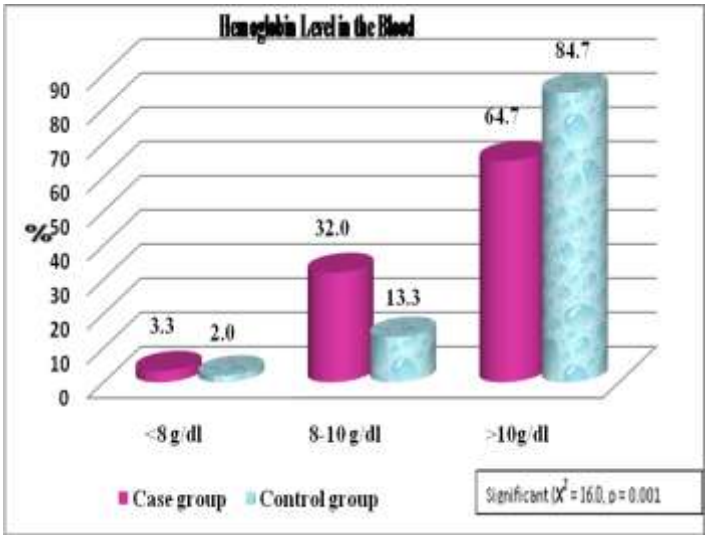

Figure 2: Distribution of the Studied Women According to their Hemoglobin Level in the Blood (n=300):

Table 4: Distribution of the Studied Women According to Maternal Complication (n=300)

Maternal complications		Groups				FEP
		Cases (PTL) (n=150)		Controls (Term labor) (n=150)		
		No.	%	No.	%	
▪ Blood transfusion	No	120	80.0	144	96.0	0.001*
	Yes	30	20.0	6	4.0	
▪ Primary postpartum hemorrhage	No	137	91.3	150	100.0	0.001*
	Yes	13	8.7	0	0.0	
▪ Perineal trauma	No	143	95.3	124	82.7	0.074
	Yes	7	4.7	26	17.3	
▪ Retained placenta	No	146	97.3	150	100.0	0.044*
	Yes	4	2.7	0	0.0	
▪ ICU admission	No	146	97.3	150	100.0	0.044*
	Yes	4	2.7	0	0.0	
▪ Hysterectomy	No	148	98.7	150	100.0	0.156
	Yes	2	1.3	0	0.0	

Table 5: Distribution of the Studied Women According to Apgar Score and Birth Weight

Apgar score	Groups				MCP
	Cases (PTL) (n=187)		Controls (Term labor) (n=155)		
	No.	%	No.	%	
Apgar score at first minute					
▪ normal (7-10)	41	21.9	133	85.8	0.001*
▪ mild to moderate asphyxia(4-6)	30	16.0	19	12.3	0.216
▪ sever asphyxia(0-3)	116	62.1	3	1.9	0.001*
Range	2-9		3-9		t=15.2 P=0.001*
Mean ± SD	4.3 ± 2.1		7.2 ± 1.1		
Apgar score at five minute					
▪ normal(7-10)	67	35.8	155	100.0	0.001*
▪ mild to moderate asphyxia(4-6)	70	37.5	0	0.0	0.001*
▪ sever asphyxia(0-3)	50	26.7	0	0.0	0.001*
Range	2-10		7-10		t=14.9 P=0.001*
Mean ± SD	5.8 ± 2.2		8.7 ± 0.9		
Birth weight					
▪ Extremely low birth weight(<1.000g)	7	3.7	0	0.0	0.547
▪ Very low birth weight (1.000 - <1.500g)	46	24.6	0	0.0	0.004*
▪ low birth weight (1.500-<2.500g)	69	36.9	3	1.9	0.002*
▪ Normal birth weight(2.500-<4.000g)	63	33.7	144	92.9	0.001*
▪ High birth weight(≥ 4.000g)	2	1.1	8	5.2	0.185
Range	0.500-4.800		1.500-4.800		t=13.7 P=0.001*
Mean ± SD	2.1 ± 0.8		3.1± 0.4		

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عوامل الخطر ونتاج الحمل للولادة المبكرة

المقدمــة

الولادة المبكرة هى السبب الرئيسي للأمراض والوفيات عند حديثى الولادة و الأمهات في جميع أنحاء العالم وتؤثر على ما يقرب من خمس النساء الحوامل في الولايات المتحدة وهى السبب الأكثر شيوعا للأمراض والوفيات في الأطفال حديثي الولادة وتعتبر الولادة المبكرة واحدة من التحديات الكبرى في الرعاية المقدمة للسيدات الحوامل قبل الولادة .لا تؤثر الولادة المبكرة على حديثى الولادة فحسب، بل أيضا على أسرهم الذين قد يضطروا إلى قضاء الوقت الكثير والموارد المالية لضمان توفير الرعاية لأطفالهن المبتسرين(الخدج)؛ وبالتالي، فالولادة المبكرة قد تزيد التكاليف المترتبة للعائلات والخدمات الصحية.

ولذلك أجريت هذه الدراسة لتحديد عوامل الخطر المرتبطة بالولادة المبكرة ومقارنة نتاج الحمل بين النساء اللاتى يعانين من الولادة المبكرة وذوى الولادة مكتملة فترة الحمل. وقد أجريت الدراسة على مجموعتين من السيدات " المجموعة الأولى وتكونت من 150سيدة تعرضن للولادة المبكرة والمجموعة الثانية اشتملت على 150سيدة لديهن ولادة مكتملة فترة الحمل " بقسم الولادة بمستشفى الولادة والأطفال بمستشفيات جامعة الزقازيق.

أدوات البحث

1 - استمارة استبيان لجمع البيانات الديموجرافية.
2 - استمارة الفحص عند الدخول لحجرة الولادة.

3 - استمارة ملخص الولادة.
4 - استمارة تقييم حالة المولود.
تم اختبار أدوات جمع البيانات للتأكد من مصداقيتها وثباتها. وأجريت دراسة تجريبية على 30 سيدة لتقييم وضوح وتطبيق أدوات جمع البيانات والترتيبات الصحيحة للبنود المراد تجميعها, و لتقدير الوقت المناسب لملئ الاستمارة . وقد استغرقت الدراسة ستة أشهر فى الفترة من بداية يونيو 2014 إلى نهاية نوفمبر2014. وبعد ذلك تم تصنيف البيانات التى تم جمعها وترتيبها وجدولتها وتحليلها بواسطة برنامج SPSS الإصدار 20.

<u>وأسفرت نتائج البحث على التالى :</u>

- النساء اللاتي تعرضن لولادة مبكرة تراوحت أعمارهن بداية من 35 سنة أوأكثر (21.5٪) مقارنة مع (4.0٪) من النساء اللاتي كانت لديهن الولادة مكتملة فترة الحمل ومتوسط أعمارهم 27.7 ±6.3 مقابل 25.5 ±4.8 والفرق الذى لوحظ ذو دلالة احصائية t=3.3 p= 0.001.
- نسبة النساء الأميات وأولئك اللاتى ليس لديهن دخل أسرى غير كافى كانت أعلى في مجموعة الحالات من ذلك في مجموعة التحكم (29.3)٪، 42.0٪ مقابل 14.0٪، 10.0٪ على التوالي .(الفروق الملحوظة ذات دلالة إحصائية (0.002&0.001).
- خمسى السيدات (40.7٪) فى مجموعة الحالات تعرضن لبيئة غير آمنة مقارنة مع 20.7٪ فقط من مجموعة التحكم .الفرق الذي لوحظ لة دلالة إحصائية (0.001).
- حوالى أكثر من ثلثى السيدات (35.3%) اللاتى تعرضن للولادة المبكرة لديهن تاريخ سابق لعملية توسيع وكشط الرحم وكذلك تاريخ العقم (18.7%) أو تقنية الإنجاب المساعدة (10.7٪) مقارنة مع تلك الموجودة في مجموعة التحكم (13.3% ، 9.3٪ و 4.0٪ على التوالي) . الفروق الملحوظة ذات دلالة إحصائية(0.001، 0.020و0.027). وفي الوقت نفسه، تعرضن لنسبة أعلى من إتساع عنق الرحم وربط عنق الرحم (14.0٪) مقابل (0.0٪). مع وجود فرق ذو دلالة إحصائية (0.024).

- ما يقرب من ثلث (33.3٪) من السيدات اللاتى تعرضن للولادة المبكرة كان لديهن تاريخ عائلي من الولادة المبكرة مقارنة مع (3.3%) فقط من النساء اللا تى لديهن ولادة مكتملة فترة الحمل .الفرق الذي لوحظ لة دلالة إحصائية (0.001) وفي الوقت نفسه، كان لديهن المزيد من التاريخ بحمل متعدد الأجنة من التى فى مجموعة التحكم (15.3)٪ مقابل(12.0٪) على التوالي ولكن مع عدم وجود فروق ذات دلالة إحصائية.

- لا يوجد دلالة إحصائية بين السيدات فى المجموعتين بالنسبة الى عدد مرات الحمل على الرغم من أن السيدات اللاتى لم يلدن أو الاتى لديهن 4 أوكثر كن اكثر عرضة للولادة المبكرة مقارنة بمجموعة التحكم(10.1%,11.9% مقابل 2.8%و4.6% على التوالى) . أيضآ السيدات اللاتى لديهن ولادة مبكرة تعرضن للتاريخ السابق للإجهاض وولادة مبكرة سابقة بجانب قصر الفترة بين الحمل الحالى والسابق(من 6 الى أقل من 12 شهر). مع وجود دلالة أحصائية (p=0.001). وتقريبآ نصف السيدات الاتى يعانين من ولادة مبكرة كان لديهن ولادة قيصرية سابقة مقارنة بمجموعة التحكم مع وجود دلالة إحصائية (p=0.009) .

- زادت نسبة السيدات التى قلت متابعتهن للحمل عن أربع زيارات خلال فترة الحمل فى مجموعة الولادة المبكرة مما زاد من تعرضهن لمشاكل جعلتهن يحتجزن بالمستشفى مقارنة بجموعة التحكم والفروق ذات دلالة إحصائية(p=0.001). وكان السبب الأكثر شيوعا فى الدخول الى المستشفى هو الإنفجار المبكر لجيب المياة (45.0%) ويليه ارتفاع ضغط الدم أثناء الحمل (35.0%) و قلة السائل الأمنيوسى (35.0%). بالإضافة الى تساوى النسب (10.0%) للأمراض الطبية وعدوى السائل الأمنيوسى وكذلك الولادة المبكرة المنذرة(8.3%) والتى كانت سببا لحجزهن فى المستشفى أثناء الحمل.

- من ناحية أخرى فإن السيدات اللاتى تعرضن للولادة المبكرة كن أكثر عرضة الى الضائقة الجنينية ، تأخر نموالجنين داخل الرحم ، عدوى السائل الأمنيوسى ،الإنفجارالمبكر لجيب المياة علاوة على ذلك السيدات فى مجموعة الولادة المبكرة لديهن ارتفاع لضغط الدم اثناء الحمل ، الحمل لأكثر من جنين ، اتساع وربط عنق الرحم، النزيف قبل الولادة و زيادة حجم السائل الامنيوسى مقانة بمجموعة التحكم مع وجود دلالة إحصائية.

وعلى ضوء هذه النتائج فأننا نستخلص الأتي:

أن خطر حدوث الولادة المبكرة يتزايد مع زيادة عمر الأم ، تعدد الولادات ، تاريخ عائلي من الولادة المبكرة وكذلك تاريخ العقم واستخدام تقنية الإنجاب المساعدة ،حدوث ولادة مبكرة سابقة والعملية القيصرية السابقة. بالإضافة الى انهن كن اكثر عرضة للإصابة بالإنفجار المبكرلجيب المياة وارتفاع ضغط الدم اثناء الحمل و النزيف قبل الولادة ، حمل لاكثر من جنين. وبالإضافة إلى ذلك ارتبطت الولادة المبكرة بزيادة معدلات المرض والوفيات عند الأمهات وحديثي الولادة.

وعلى ضوء هذه النتائج فان من أهم توصيات:

- الممرضة لابد ان تشرح للسيدة علامات وعوامل الخطر للولاة المبكرة ، مشاكل ومخاطر البيئة اثناء الحمل وتقدم النصيحة والتدخل التمريضى بالإضافة الى إعطاء السيدة الحامل روشتة بذلك.
- ممرضة الأمومة لابد أن تركز على تقليل عوامل الخطر مثل عوامل الخطر النفسية والإجتماعية مع العوامل الطبية التى ترتبط بحدوث الولادة المبكرة مثل العدوى ،ارتفاع ضغط الدم أثناء الحمل والإجهاض.