MATERNAL AND LABOR OUTCOME IN WOMEN WITH PRE-ECLAMPSIA IN EL-TAKHASOSE HOSPITAL IN DAMITTA CITY

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ABSTRACT

Background: Pre-eclampsia is a major complication of pregnancy, it is pregnancy-specific Condition, represents a major cause of morbidity and mortality in mother, fetus and infant in many parts of the world. **Aim:** to assess the maternal and labor outcome in women with pre-eclampsia in El-takhasose hospital in damitta city. **Subject and Methods:** Study was carried out in the obstetric and gynecological departments in El-Takhasose hospital in Damitta city using a case control design. The sample constituted **140** women; the study subjects were divided into two equal groups of 70 parturient women each, as follows: Group A; the study group, who *should* have a definite medical diagnosis of pre-eclampia. Group B; normotensive women without preeclampsia. Data were collected using five tools devised specifically for the study. **Results**: Women in the study group had high incidence of preeclampsia among yang women; low education level and unregular antenatal care. **Conclusion**: The study find that, the incidence rate of preeclampsia decreased by regular antenatal visits and prevent fetal and maternal complications.

INTRODUCTION

Pre-eclampsia is a medical condition in which hypertension arises in pregnancy   of at least 140/90 mmHg on two separate occasions measured at least 4 hours apart. It is accompanied by significant proteinuria of at least 300 mg in a 24-hours, collection of urine, arising after the 20th week of gestation in a previously normotensive woman and resolving completely by the 6th post-partum week **(Wilson, 2006; Scot et al., 2009).**

The incidence of preeclampsia in the United States is estimated to range from 2% to 6% in healthy, nulliparous women *(Sibai et al., 2003).* The global incidence of preeclampsia has been estimated as 5-14% of all pregnancies. In developing nations, the incidence of the disease was reported to be 4-18% *(Villar et al., 2001),* with hypertensive disorders being the second most common obstetric cause of stillbirths and early neonatal deaths in these countries *(Ngoc et al., 2006).*in Egypt preeclampsia consider a major cause of maternal death, associated with 27% of direct obstetric death and22%of all maternal death **(*National Maternal Mortality Study2000; NMMS, 2001).***

 Although the exact cause of pre-eclampsia is not know. It is probably due to problem with placenta. This is the attachment between baby and uterus. It is thought that there are problems with the development of blood vessels of the placenta in pre-eclampsia and also damage to the placenta in some way **(Saadat et al., 2007).**

Habli (2007) *reported that, pre-eclampsia is common in primigravida and obese women. Women who are younger than 18 or older than 35 years of age and who have history of preeclampsia, preexisting diabetes, chromosomal abnormalities, chronic renal disease. Those who had Rh incompatibility or have multiple gestations are more likely to develop preeclampsia.*

Preeclampsia is mild in 75% of cases and severe in 25% of them in its extreme, the disease may lead to liver and renal failure, disseminated intravascular coagulopathy (DIC), and central nervous system (CNS) abnormalities. If preeclampsia-associated seizures develop, the disorder has developed into the condition called eclampsia. Mild preeclampsia is defined as the presence of hypertension (BP ≥140/90 mm Hg) on 2 occasions, at least 6 hours apart, but without evidence of end-organ damage in the patient *(Sibia, 2004).*

Severe preeclampsia is defined as the presence of one of the following of that, (BP ≥160/110 mm Hg), Proteinuria of more than 5 g in a 24-hour collection or more than 3+ on 2 random urine samples collected at least 4 hours apart oliguria (<400 mL in 24 h),

Persistent headaches, Pulmonary edema or cyanosis. Also thrombocytopenia, epigastric pain and/or impaired liver function Oligohydramnios, decreased fetal growth, or placental abruption (**Licci & Kyle, 2009).**

Although the Preeclampsia was described more than 2000 years ago by the ancient Egyptians *(Shourbagy et al., 2011).* But still kept by a large and cause a lot of complications growth restriction, premature birth and still birth. Babies are also more likely to develop breathing problem after they are born .In addition ,are   women more likely to develop   pulmonary edema, thrombotic complications, renal failure, and death. Preeclampsia can evolve into eclampsia, leading to maternal seizures. One specific subset of signs and symptoms known as the HELLP Syndrome (Hemolysis, Elevated liver enzymes, and low platelets) *(Lim et al., 2011)*.

Nursing care for preeclamptic women is done by monitoing of   ; vital signs and fetal heart rate minimizing external stimuli; promoting rest and relaxation, measuring and recording urine output, protein level, and specific gravity, assessing   edema of face, arms, hands, legs, ankles, and feet. Also assessment of pulmonary edema and weighting women daily *(Shourbagy et al., 2011)*. Numerous strategies (low-dose aspirin, calcium, and vitamin C and E supplementation) have been shown to be of little benefit, and the only cure is the delivery of the fetus *(Magee et al., 2009).* Therefore, in pregnancies complicated by preeclampsia, obstetricians must balance the need for achieving in utero fetal maturation with the maternal and fetal risks of continuing pregnancy, including progression to eclampsia, abruptio placentae, and HELLP syndrome, as well as fetal growth restriction and demise *(Sibai et al., 2003)*.

AIM OF STUDY:

The Aim of study to assess the maternal and labor outcome in women with pre-eclampsia in El-takhasose hospital in damitta city.

SUBJECT AND METHODS:

The design that was used in carrying out this study is case control desing **,** the study was conducted in the obstetric and gynecological department at the El Takhasose hospital in Damietta. This hospital was chosen as it is the biggest hospital in Damietta, and provides services to a large sector of the patients.   The study population consisted of all *parturient* women attending the previously mentioned   study setting. A total of **140** parturient women were recruited for this study according to the following estimated of sample size and inclusion criteria : (the study group "have medical diagnosis of pre-eclampsia" and control group "normotensive women without pre-eclampsia")

*Five tools will be used to collect data***:**

TOOL (I): *A structured Interview sheet:*

This tool was developed by the researcher to assess the condition of the pregnant women and the risk factors of pre-eclampsia, it consists of three parts:

Part 1:

Collecting data about Socio-demographic data such as: (Patient's age, sex, education level and occupation…etc).

Part 2:

Containing data about obstetrical and medical history: Number of gravida, number of para, abortion, live birth, still birth, neonatal death, history of previous pregnancy, family history of preeclampsia, previous history of preeclampsia and outcome of last delivery.

Part 3:

Containing data about Current pregnancy history, present complaint during pregnancy, utilization of antenatal care, history of any complications during pregnancy.

TOOL (II): *Maternal Assessment Sheet was included:*

General examination such as vital signs, abdominal examination, vaginal examination and ultrasound assessment.

TOOL (III): *Partograph:*

To find out fetal condition, the progress of labor and the maternal condition.

TOOL (IV): *Summary of Labor Sheet:*

It was include duration of first, second and third stage of labor, mode of delivery and women condition during the fourth stage of labor.

TOOL (V): *Neonatal Assessment Record*

This record includes APGAR score at 1 and 5 minutes, birth weight, sex, neonatal complications such as (asphyxia, sepsis and seizures), admission to neonatal intensive care unit and birth injury.

Tools Validity and Reliability:

A- Pilot Study:

 was carried out on 10 % of the women's going to the clinic excluded from the sample to test applicability of the tool then necessary modifications will be done according to the results of pilot study.

B- Face Validity:

A jury consisting of five experts in nursing staff in the field.

C- Cronbach's Alpha:

 Coefficient was calculated to assess the reliability of the developed tool through their internal consistency.

d-The Ethical Consideration :

The aim of the study was explained to every woman before participation

RESULTS:

Table (1) shows the comparison of the socio-demographic characteristics of women in the study and control groups. Women with preeclampsia were significantly (p=0.001[**]) younger (<25) and older (35+) than normotensive women (64.3% & 52.9% vs. 22.9% & 20.0%).It is evident that more than three fifths (68.6%) of the preeclamptic women were housewives compared to 38.6% of women in the control group.

Table (2) shows that, both the PE and control groups had no history of medical diseases. But more than three quarters of women (78.6%) in the control group had positive family history of diseases compared to none (100.0%) in the preeclamptic group

Table (3) shows that the highest percentage was primigravida in preeclamptic group (64.3% vs. 30.0% respectively). Regarding the history of abortion, preeclamptic women were more likely to have previous abortion (92.3%) compared to the normotensive group (30.6%), the differences observed was statistically significant (p = 0.000*).

Table (4) shows that, women with severe preeclampsia had higher percentage of previous preeclampsia (22.5%) than women with mild preeclampsia and normotensive women.

Table (5) shows that, less than one-third (31.4%) of women in the preeclamptic group had no antenatal care during their current pregnancy compared to 77.1% of women in the control group, with statistical significant difference (p=0.000*).

Table (6) shows that none (0.0%)of women who had severe or mild preeclampsia had spontaneous vaginal delivery ،compared to 71.4% of the control group .Moreover, the vast majority of women in both mild and sever PE groups had emergency type of cesarean section compared to those in the control group (89.7%, 83.9%) vs (50%) respectively.

Table (7) shows that similar proportion of women with severe PE was exposed to postpartum hemorrhage and the administration of IV blood (87.1%) compared to those in the mild PE and control groups. The difference observed was statistically significant (p=0.000). Meanwhile, the admission to ICU was more common among women with sever Preeclampsia (83.9%) than those with mild Preeclampsia and normotensive women (30.8% & 0.0% respectively).

Table (8) show that the score was much less (2.4± 1.5) among the newborn with sever preeclampsia compared to those who had their mothers had mild preeclampsia or the control group (4.5±2.4 & 7.7±0.6 respectively). In addition, the newborns of women with sever preeclampsia were more likely to have the lowest mean birth weight (1350 ±136.0) compared to those in mild preeclampsia and control groups (1415.4 ± 111.9 and 2766.4±147.8 respectively).

 Table (9) shows that women in severe preeclamptic group had higher percentage of newborn admission to the NICU (71%) compared to (51.3%) in the mild and none in the control groups .The eleven dead newborns (35.5%) present in the severe preeclamptic group were mainly due to respiratory distress.

Table (1): Distribution of the studied women according to their socio-demographic characteristics (n=140).

Socio-demographic characteristics	Groups				X^2	P
	Pre-eclampsia (n=70)		Control (n=70)			
	No	%	No	%		
Age:						
<25	45	64.3	37	52.9	4.5	0.106
25-	9	12.9	19	27.1		
30-37	16	22.9	14	20.0		
Mean ± SD	23.5 ± 5.2		25.5± 4.4		t=2.4	0.018*
Occupation:						
Working	22	31.4	43	61.4	12.7	0.000*
Housewife	48	68.6	27	38.6		
Education level:						
Illiterate	13	18.6	6	8.6		
Reading ,Write	8	11.4	3	4.3		
Primary school	11	15.7	7	10.0	12.4	0.029*
Preparatory school	24	34.3	26	37.1		
Secondary school	0	0.0	4	5.7		
University	14	20.0	24	34.3		

*t :independent samples t-test   * P < 0.05 (significant)*

Table (2): Distribution of the studied women according to their medical and family history (n=140)

Medical and Family History	Group				X^2	P
	Pre-eclampsia (n=70)		Control (n=70			
	No.	%	No.	%		
Medical history Negative	70	100.0	70	100.0	NA	NA
Family history						
Negative	0	0.0	15	21.4	16.8	0.000*
Positive	70	100.0	55	78.6		
If positive						
Cardiac disease	13	18.6	6	10.9		
Hypertention	15	21.4	15	27.3		
Liver disease	13	18.6	20	36.4	13.9	0.007*
Preeclampsia	11	15.7	0	0.0		
Diabetic disease	18	25.7	14	25.5		

*NA: Not Applicable   * P < 0.05 (significant)*

Table (3): Distribution of the studied women according to their obstetrical history (n=140)

Obstetrical history	Groups				X^2	P
	Pre-eclampsia (n=70)		Controls (n=70)			
	No.	%	No.	%		
Gravidity Primigravida 2-3 4-5	45 19 6	64.3 27.1 8.6	21 40 9	30.0 57.1 12.9	16.8	0.000*
Mean ± SD	1.7 ± 1.0		2.3 ± 1.0		t=3.3	0.001*
Parity Nullipara Primipara 2-3	16 5 4	64.0 20.0 16.0	2 26 21	4.1 53.1 42.9	32.2	0.000*
Mean ± SD	0.6 ± 0.9		1.5 ± 0.7		t=4.8	0.000*
Abortion No Yes	2 23	8.0 92.0	34 15	69.4 30.6	24.9	0.000*
Still birth No Yes	23 2	92.0 8.0	48 1	98.0 2.0	FEP	0.219
Neonatal death No Yes	23 2	92.0 8.0	48 1	98.0 2.0	FEP	0.219

*t: independent samples t-test   FEP: p value based on fisher exact probability   * P < 0.05 (significant)*

Table (4): Distribution of the studied women according to their obstetrical history (n=140)

Past obstetric history	Control		Preeclampsia				*MCP*
			Mild		Severe		
	No	%	No	%	No	%	
Previous preeclampsia No Yes	70 0	100.0 0.0	39 0	100.0 0.0	31 7	100.0 22.5	0.000*
Mode of last delivery NVD C.S	34 13	72.3 27.7	1 7	12.5 87.5	0 100	0.0 100.0	0.004*

*MCP: P value based on Mont Carlo exact probability   * P < 0.05 (significant)*

Table (5): Distribution of the studied women according to their antenatal care visits during present pregnancy

Antenatal Care Visits	Groups				X^2	P
	Pre-eclampsia (n=70)		Controls (n=70)			
	No.	%	No.	%		
ANC Yes No	22 48	31.4 68.6	54 16	77.1 22.9	29.5	0.000*
Onset of ANC 1st trimester	22	100.0	54	100.0	NA	NA
ANC visits No. Ideal Non ideal	9 13	40.9 59.1	53 1	98.1 1.9	34.1	0.000*

NA: Not Applicable   ** P < 0.05 (significant)*

Table (6): Distribution of women according to their delivery outcome (n=70)

Delivery type	Control N=70		Preeclampsia				MCP
			Mild N=39		Severe N=31		
	No	%	No	%	No	%	
NVD	50	71.4	0	0.0	0	0.0	0.000*
C.S	20	28.6	39	100.0	31	100.0	
If C.S type							
Emergency C.S	10	50.0	35	89.7	26	83.9	0.001*
Elective C.S	10	50.0	4	10.3	5	16.1	

MCP: P value based on Mont Carlo exact probability   ** P < 0.05 (significant)*

45

Table (7): Distribution of women according to maternal outcome (n=140)

Maternal problems assessment	Control		Preeclampsia Mild		Severe		X^2	P
	No	%	No	%	No	%		
Postpartum hemorrhage Yes No	9 61	12.9 87.1	10 29	25.6 74.4	27 4	87.1 12.9	54.9	0.000*
Administration of IV blood Yes No	9 61	12.9 87.1	18 21	46.2 53.8	27 4	87.1 12.9	51.3	0.000*
Admission to ICU Yes No	0 70	0.0 100.0	12 27	30.8 69.2	26 5	83.9 16.1	76.7	0.000*
Length of hospital stay Range	1-2		2-6		2-9		F=34.2	0.000*
Mean ±SD	1.1± 0.3		3.7 ± 1.1		5.3 ± 1.8			
Median	1.0		4.0		5.0			

Table (8): Distribution of Women According to the Neonatal Outcome (n=70)

Neonatal assessment	Control	Preeclampsia Mild	Severe	X^2	P
Birth weight					
Range	2500-3000	1150-1600	1100-1800	F=55.7	0.000*
Mean ±SD	2766.4 ± 147.8	1415.4 ± 111.9	1350 ± 136		
APGAR 1st minute					
Range	4-6	0-5	0-5	F=62.8	0.000*
Mean ±SD	5.1± 0.8	3.1± 1.7	2.4± 1.5		
APGAR 5th minute					
Range	7-9	0-6	0-6	F=71.9	0.000*
Mean ±SD	7.7 ± 0.6	4.5± 2.4	3.7 ± 2.5		

*MCP: P value based on Mont Carlo exact probability   F: One Way ANOVA   * P < 0.05 (significant)*

Table (9): Distribution of women according to the neonatal complication (n=70)

Neonatal complications	Control		Preeclampsia				X^2	P
			Mild		Severe			
	No	%	No	%	No	%		
Complications								
Yes	0	0.0	39	100.0	31	100.0	55.9	0.000*
No	70	100.0	0	0.0	0	0.0		
Type of complications								
Need for resuscitation	0	0.0	19	48.7	20	64.5	*MCP*	0.186
NICU	0	0.0	20	51.3	22	71.0	*MCP*	0.571
Death	0	0.0	0	0.0	11	35.5	*MCP*	0.162

*MCP: P value based on Mont Carlo exact probability   F: One Way ANOVA   * P < 0.05 (significant)*

DISCUSSION

In the present study, most of the cases belonged to middle socioeconomic status, having common occupational background with sedentary life style, and had low or middle level of education compared to the normotensive group with statistical significant difference between the two groups (p=0.000). This finding is not similar to *Saftlas et al., (2004)* in their study about Work, Leisure-Time Physical Activity, and risk Preeclampsia and Gestational hypertension in new Haven, who have emphasized that unemployed women or those who had sedentary job were at decreased risk of Preeclampsia.

 Concerning parity, the present study showed that, almost two fifths of preeclamptic women were primipara compared to less than one third of normotensive women, and that the mean parity was lesser in the PET group than the normotensive group .Nulliparity almost triples the risk for pre-eclampsia (2.91, 1.28 to 6.61) *(Lee et al., 2000).* This is supported by adjusted odds ratios for nulliparity from two other cohort studies *(Hogberg, 2005).*

The great majority of the preeclampsia women in the present study had previous abortion compared to less than one third of normotensive group .This underscores the importance of provision of quality antenatal and natal care to this group, being nulliparous, and having history of previous abortion and with no previous experience with labor. Similar finding were reported by *Trogstad et al., (2008)* in Norwegian in their study about previous abortion and risk of preeclampsia.

  According to the present study results, more than two fifths of the studied women were diagnosed as having severe preeclampsia and the rest had mild PET. This figure is very close to that revealed by *Sangkomkamhang et al., (2010)* in khon kaen in their studies about, maternal and neonatal outcomes in preeclampsia and normotensive pregnancies who have reported that among 151 preeclamptic women 57 (37.7%) had mild, 91 (60.3%) had severe preeclampsia 2.0% had eclampsia**.**

Poor ante-natal care is risk factor for preeclampsia *(Duckitt & Hurrington, 2005).* But in the present work poor antenatal care is insignificant risk factor. This finding is quite alarming given the importance of such services for safe motherhood and childbirth; especially among primiparous who constitute the great majority of preeclamptic pregnancies.

Similarly, *Luealon & Phupong (2010)* comparison of the clinical findings of parturient women in the two study groups has demonstrated that women in the severe Preeclamptic group had statistically significantly higher level of proteinuria (>2+), systolic and diastolic blood pressure. They also, had higher percentage of abnormal CTG and presence of fits. These findings further confirm the typical history of severe preeclampsia.

The finding is in congruence with *Bramham et al., (2011)* study findings regarding the mode of deliver, it was found that almost half of women in the preeclamptic group were delivered by cesarean section compared to less than one tenth of the normotensive group with a statistically significant difference. Women with severe PH were more likely to have emergency and elective CS. While, those with mild PE were more likely to have emergency CS. This finding implies that the deliveries among preeclamptic women whether severe or mild were more complicated and needed quality antenatal and natal care. Similar findings were reported by *Saadat et al., (2007)* who have reported that thirty percent of preeclamptic and 13.0% of healthy pregnant women required cesarean section, with occurrence being more frequent in the patients group (p =0.001). Furthermore, the present result is on the same line with *Luealon & Phupong (2010)* who have reported that cesarean delivery was statistically higher (p<0.001) in women with preeclampsia than" those in the control group (61.2% vs. 42.1%).

Studied perinatal outcomes associated with preterm birth at 33 to 36 weeks gestation and found perinatal mortality rate to be 8 times higher, neonatal mortality rate to be 5.5 times higher and, respiratory morbidity to be 4.4 times higher in the pre-term babies than in term babies. Similarly, *(Young et al., 2007)* studied mortality in late preterm new born babies and found the neonatal mortality rate to be higher in preterm babies than babies born at term.

Concerning neonatal complications, the present study shows that women in Preeclamptic group had higher percentage of newborns admitted to the NICU compared to none in normotensive group. This finding is in agreement with *Ayaz et al., (2009),* different incidences of the neonatal death in severe preeclampsia and eclampsia have been reported. The neonatal mortality of more than one third in the severe preeclamptic group was similar that of *Tuffnell et al., (2005).*

CONCLUSION:

Based on study findings, it can be concluded that the incidence rate of preeclampsia decreased by regular antenatal visits and prevent fetal and maternal complications.

RECOMMENDATIONS:

In the light of these results, it is recommended that nurse midwives should be trained in performing and assisting with maternal and fetal assessment of preeclamptic patients and that proper care during pregnancy with regular follow up visits together with natal and postnatal care is essential to prevent fetal and maternal complications. Also written clinical guideline or nursing protocol for the management of patient with preeclampsia should be developed and used by the nursing staff and further studies of preeclampsia should focus on measures for its prevention and management.

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نـاتـج الـولادة لـدى الـسيدات الـمصابات بتسمم الحمل في مستشفى التخصصي في مدينة دمياط

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الخـلاصة

أجريت هذه الدراسة على واحده من أهم المشاكل الصحية فى كل بلدان العالم النامية والمتقدمة ومصر لديها أعلى معدل انتشار والنسبة وتعد السبب الثاني لوفيات الأمهات في مصر. ولهذا كان الهدف من هذه الدراسة هو إيجاد عوامل الخطورة المرتبطة بتسمم الحمل وتقيم للسيدات وحديثي الولادة المصابين بتسمم الحمل مقارنة بالسيدات الحوامل ذوات الضغط الطبيعي للإجابة على السؤال، ما هي عوامل الخطورة لتسمم الحمل وما هو ناتج الوالدة للسيدات وحديثى الولاده المصابين بتسمم الحمل مقارنة بالسيدات الحوامل ذوات الضغط الطبيعي. وقد وأجريت هذه الدراسة فى قسم النساء والولادة بمستشفى التخصصى بدمياط على مائة وأربعين حالة **70** حالة يعانون من تسمم الحمل و **70** لا يعانون من تسمم الحمل . وقد أظهرت نتائج الدراسة. ارتفاع نسبة حدوث تسمم الحمل مع السيدات اقل من **20** سنة والأكبر من **35** سنة و ذلك بعد الأسبوع **20** من الحمل ارتفاع نسبة المشاكل المرتبطة بالحمل والولادة مع السيدات التى تعانى من تسمم الحمل عن السيدات التى لا تعانى وهذا بالنسبة للسيدات ومواليدهم: وهذه المشاكل بالنسبة للسيدات مثل نزيف ما بعد الولادة والفشل فى وظائف الكلى وفشل فى وظائف الكبد وغيرها من المشاكل اما بالنسبة للمواليد ارتفاع نسبة حدوث نقص للنمو وارتفاع نسبة دخول الحضانات وارتفاع نسب الوفيات للأجنة والمواليد. لذلك أوصت الرسالة بضرورة عمل برنامج تدريبي عن كيفية تقيم عوامل الخطورة لتسمم الحمل وتدريب الممرضات على هذا البرنامج وذلك لتفادى حدوث الكثير من المشاكل والارتقاء بصحتهم .