

Research Article

Maternal and perinatal outcome in women with hypertensive disorders of pregnancy at El-Mina Maternity University hospital at 2019

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Abstract

Hypertensive disorders of pregnancy (HDP) are multisystem diseases known to increase the risk of perinatal mortality worldwide. **Aim of the work:** To detect the maternal and perinatal outcome, improve the outcome in cases of hypertensive disorders with pregnancy in one year at El-Mina Maternity University and how to improve it. **Patients and Method: Study Design:** It is prospective descriptive study from available data at 2019. **Setting:** Department of Obstetrics and Gynecology at El-Mina maternity University hospital. **Result:** The study included 1334 women from EL-Minia Maternity University Hospital who fulfilled the criteria for hypertensive disorders during pregnancy during the period between the first of January 2019 to the first of January of 2020, it represents 10.8% of total patient admitted in the hospital. **Recommendation:** Antenatal care is the strategy while intranatal care is the tactic to reduce Maternal morbidity and subsequent mortality in primary health care units and hospital outpatient clinics. More attention to BP measurement and urine analysis to all PG cases especially after 34 weeks. The purpose of antenatal care is not only to maintain the physiological profile of pregnancy, but also to identify patients with risk factors, early diagnosis, which allows for appropriate management and as result reduce maternal and fetal morbidity and mortality.

Keywords: Hypertensive, Maternal and perinatal, pregnancy

Introduction

Hypertensive disorders of pregnancy (HDP) are multisystem diseases known to increase the risk of perinatal mortality worldwide. ⁽¹⁾

Hypertension in pregnancy is defined as a diastolic blood pressure (DBP) \geq 90 mm Hg and /or a systolic blood pressure (SBP) \geq 140 mm Hg measured at least twice separately. Severe hypertension is variably defined as a blood pressure (BP) \geq 160 mm Hg to 170/110 mm Hg and non severe (or "mild-moderate") hypertension as a BP between 140/90 mm Hg and 159/109 mm Hg. ⁽²⁾

Preeclampsia is a pregnancy-related hypertensive disorder occurring usually after 20 weeks of gestation. If left untreated, it progresses to eclampsia. Worldwide, the incidence of preeclampsia ranges between 2% and 10% of pregnancies. WHO estimates that the incidence of preeclampsia to be seven times higher in developing countries (2.8 % of live births) than in developed countries (0.4 %) ⁽³⁾.

Preeclampsia has remained a significant public health threat in both developed and developing countries contributing to maternal and perinatal morbidity and mortality globally ⁽⁴⁾. However, impact of the disease is felt more severely in developing countries ⁽⁵⁾.

Preeclampsia is a pregnancy specific hypertension disease with multisystem involvement. It can be superimposed on another hypertensive disorders. It is the most common form of high blood pressure that complicate pregnancy and primary defined by occurrence of new onset hypertension plus new onset proteinuria. ⁽⁶⁾

The pathophysiology of preeclampsia likely involves both maternal and fetal/placental factors. Abnormalities in the development of placental vessels early in pregnancy may result in placental hypo perfusion, hypoxia, or ischemia.

Hypo perfusion, hypoxia, and ischemia are critical components in the pathogenesis of

preeclampsia because the hypo perfused placenta transfers many factors into maternal vessels that alter maternal endothelial cell function and lead to the systemic symptoms of preeclampsia.

There are several hypotheses to explain the pathogenesis of the preeclampsia, including altered angiogenic balance, circulating angiogenic factors (such as marinobufagenin, a bufadienolide trigger), and activation of the renin-angiotensin system. Epigenetically-modified cell-free nucleic acids that circulate in plasma and serum might be novel markers with promising non-invasive clinical applications in the diagnosis of preeclampsia.⁽⁷⁾

It is estimated that every year eclampsia is associated with about 50000 maternal deaths worldwide, most of which occur in developing countries⁽⁸⁾.

The incidence of eclampsia is higher in developing countries than in developed countries, probably due in particular to pregnant women's lack of easy access to appropriate antenatal care in those settings. Even in countries with low maternal mortality, a substantial proportion of the maternal deaths will be attributed to preeclampsia/eclampsia. In the United Kingdom, preeclampsia and eclampsia account for 15% of the direct maternal deaths and two-thirds are related to preeclampsia⁽⁹⁾.

Clear protocols for early detection and management of preeclampsia are required for better maternal as well as perinatal outcome, especially in the developing countries⁽¹⁰⁾.

Aim of the work

To detect the maternal and perinatal outcome, improve the outcome in cases of hypertensive disorders with pregnancy in one year at El-Minia Maternity University and how to improve it.

Patients and Method

Study Design:

It is prospective descriptive study from available data at 2019.

Setting:

Department of Obstetrics and Gynecology at El-Minia maternity University hospital.

Subjects:

All cases delivered at El-Minia maternity University hospital from 1/1/2019 to 1/1/2020.

Ethical issues:

Ethical permission was sought from a Local Research Ethics Committee (REC).

All participants will sign a written consent in study after reading the patient information sheet or having it read for them they cannot read or write.

The aim of the study was explained to each participant before filling the questionnaire. Confidentiality of patient data will be secured in all stage of the study. So study poses no harm regarding the safety issues to the mother or the fetus. The potential benefits and inconveniences of all aspects of the study were clearly stated to the participants.

Participants:

Inclusion criteria:

Women diagnosed to have preeclampsia.
Women diagnosed to have eclampsia or severe preeclampsia who are eligible for termination of pregnancy.

- Imminent eclampsia; headache, visual disturbances or epigastric pain and oliguria is another ominous sign.

- Eclampsia is defined as severe preeclampsia with convulsions.

Gestational hypertension

Chronic hypertension present before or persists more than 6 weeks post partum.

Chronic hypertension with superimposed preeclampsia or eclampsia.

- Unclassified hypertension or proteinuria.

Exclusion criteria:

Women with Secondary hypertension

Pregnant women with hypertensive disorders who refused to participate in the study.

- Files showing a dress away from the target governorate.

Plan of the study:

A prospective study involving all cases of all pregnant ladies with HDP admitted during the mentioned period in EL-Minia maternity hospital, EL-Minia University, Egypt.

The information on maternity mortality is collected in a form. The form is anonymous in respect of the health personnel involved in the management of the cases. It further captures

demographic details of the participant, including the name, summary of antenatal care provided, and care during labour, delivery and perperium as well as neonatal information.

The form has a section that asks whether family members contributed to any of the problems encountered by the pregnant women. It also

seeks to find out if there were any logistical or health personnel-related that lead s to mortality.

Data collection:

Data were collected in form. The form is anonymous in respect of health personal involved in management of the case. Its also seeks to find out if there were any logistical or health personal-related problem.

Table: Data collection is summarized.

A	Data collection (according to study protocol)
B	Data analysis
C	Writing up an conclusion
D	Result

Data collected from files:

Women with hypertensive disorders in pregnancy who attended at El-Mina maternity hospital, EL-Minya University, Egypt from 1/1/2019 to 1/1/2020 (from their hospital records) was evaluated as regards.

- 1- Detailed history: personal history; name, age, date of marriage, parity, occupation, residence (rural, urban), education level, antenatal care, gestational age, mode of delivery, patient demographic data, past history of preeclampsia, menstrual history; LMP, EDD, reliable date or not, obstetric history; gravity, number of abortion, IUFD, sillbirth, neonatal death, previous cs, duration from last delivery, living babies(number and sex), medical and surgical history; family history of preeclampsia, DM, chronic renal disease, chronic hypertension, multiple pregnancy, history of ICSI (intra cytoplasmic sperm injection). Watery vaginal discharge, vaginal bleeding ,Symptoms of severe preeclampsia: sudden and new swelling in face and hands, headache, changes in vision (blurred vision, scotomata), epigastric or right upper quadrant or constant low abdominal pain, nausea or vomiting, decreased urine output, convulsion, shortness of breath, rapid weight gain>5pond/week, absent or decreased fetal movement, hyper reflexia, absent knee jerk reflex in mg so4 toxicity.
- 2- Examination: vital signs, general; conscious level: assessed by Glasgow coma scale which is summation of scores for eye, verbal and motor responce. score

3 indicate deep coma or brain dead state and score 15 indicate fully awake patient (rate, regularity, volumeby digital palpation of redial artery),chest and heart, abdominal and local manifestation. Abdominal examination: careful attension should be directed towards the correcteness of performing abdominal examination. It should be done with the patient lying on her back with the shoulders slightly raised and knees slightly flixed. The hands should be warm and examination should be suspended during utrine contraction (Kim et al., 2010).

- Estimation of proteinuria by dipstic.
- 3- Complete blood count mainly hemog-lobin level, total leucocytic count, platelet count.
- 4- Coagulation profile: pc, INR.
- 5- Complete urine analysis for proteinuria.
- 6- Liver function test mainly AST, ALT.
- 7- Kidney functiontest: serum creatine, uric acid.
- 8- Rondoum blood sugar.
- 9- blood sample was taken on tube which citrate then applied to fibrin time
- 10- Abdminal ultrasonography for checking of viability of babies, fetal presentation, fetal number, fetal weight, maturity, plancental site, Aminotic fluid index.
- 11- Doppler ultrasound if done.
- 12- Cardiocography if done for assessing fetal heart rate, rhythm, variability, acceleration and deceleration.
- 13- Drug therapy.
- 14- Mode of delivery.
- 15- Indication for delivery.
- 16- Gestational age at time of delivery.
- 17- Apgar score and birth weight.

- 18- Betamethazone adminstration.
- 19- Maternal morbidity or mortality.
- 20- Neonatal outcome.

during pregnancy during the period between the first of January 2019 to the first of January of 2020,it represents 10.8 of total patient admitted in the hospital.

Result

The study included 1334 women from EL-Minia Maternity University Hospital who fulfilled the criteria for hypertensive disorders

N.B Total number of cases who delivery in the hospital is 12377.

Table: Demographic characters of pregnant women N=1334

	Number	Percentage	Mean ± SD
Age (years)			
<20	197	14.77%	22 ± 0.76
20: 35	270	20.24%	29 ± 0.83
≥35	863	64.69%	33 ± 0.57
Residence			
Rural	810	60.70%	0.488
Urban	524	39.3%	
Occupation			
House wife	1153	86.4%	1.13±0.423
Working	181	13.6%	
Education level			
Illiterate	83	6.22%	2.78±1.049
Read and write	105	7.87%	
Primary	346	25.9%	
Secondary	367	27.5%	
University	433	32.5%	
Married			
Once	1316	98.7%	1.01±0.115
Twice	18	1.3%	

Table: obstetric history of the patients N=1334

History		Range	Mean ± SD
Living babies	Male	0-5	0.47 ± 0.6
	female	0-6	1.06 ± 0.9
		Number	Percentage
Parity	0	474	35.5%
	1-2	314	23.5%
	3-4	405	30.4%
	≥5	141	10.6%
Abortion	0	943	70.7%
	1	229	17.2%
	2	79	5.9%
	≥3	83	6.2%
Previous.c.s	0	805	60.3%
	1	114	8.5%
	2	151	11.3%
	≥3	264	19.8%

Discussion

Hypertensive disorders of pregnancy (preeclampsia; eclampsia; hemolysis, elevated liver enzymes, and low platelets (HELLP) syndrome; and gestational hypertension) affect up to 10% of pregnancies⁽¹¹⁾

Hypertension in pregnancy is associated with considerable adverse outcomes for both fetuses and mothers, such as preterm birth, preeclampsia, and intrauterine growth restriction. Furthermore, women who experience pregnancy induced hypertension at increased risk for maternal morbidity and mortality.⁽¹²⁾

Innovations in screening, prevention, and treatment hypertension in pregnancy will continue to bring about improvements in maternal and infant outcomes in the years to come.⁽¹³⁾

Our study reveals that there is a defect in antenatal care as 24.4% received antenatal care regularly %75.5% diagnosed and treated.

The prevalence of hypertensive disorders during pregnancy varies according to geographic regions of the world and affect 7.8% of pregnancies in France between 2010 and 2016.⁽¹⁴⁾

In North West Ethiopia the study reported 16.8% of cases⁽¹⁵⁾ while in our study the prevalence of hypertensive disorders during pregnancy is 24.5%.

The frequency of preeclampsia in our present study during 2019 was 4.3% while was found to be 3.3% at the university maternity of Antananarivo of Madagascar⁽¹⁶⁾. The incidence of eclampsia was .05% in Iran⁽¹⁷⁾ while in our study incidence of eclampsia is .06%.

The effect of maternal age is one of the most important demographic factors that affects the incidence of preeclampsia were apparently higher in younger pregnant women (less than 30)⁽¹⁸⁾ Our study showed lowest incidence below 20 years as 14.7% of below the, 37.4% of cases was from 20-35 years and highest incidence above 35 years as 47.9% of cases as⁽¹⁹⁾ study that showed there was no significant difference in prevalence between women aged >45 years and <45 years though some suggestion of increase with age (OR 1.86; 95% CI 0.9 to 3.6; p=0.052).

The incidence of preeclampsia is higher in multipara and then multipara⁽²⁰⁾. but in our study most of cases were multipara 64.4% and multipara was 35.5%. This may be explained by irrelevant history given by patient, absence of record system for the cases, improper diagnosis in previous pregnancies and missing cases. and so, previous preeclampsia confirmed by patient history was only 8.4% despite of the fact that multipara represent 64.4% of the cases.

There is great association between hypertensive disorders during pregnancy, diabetes mellitus and multifetal pregnancy as 4.7% of cases are diabetic and 7.7% of cases have multifetal pregnancy.

Recommendation

Antenatal care is the strategy while intranatal care is the tactic to reduce Maternal morbidity and subsequent mortality in primary health care units and hospital outpatient clinics.

More attention to BP measurement and urine analysis to all PG cases especially after 34 weeks.

The purpose of antenatal care is not only to maintain the physiological profile of pregnancy, but also to identify patients with risk factors, early diagnosis, which allows for appropriate management and as a result reduce maternal and fetal morbidity and mortality.

Preconceptional counseling should be offered where the events that occurred, any risk factors and any preventive therapies can be discussed.

Public health awareness and education of women can help to improve maternal and neonatal prognosis.

In addition to nulliparity, risk factors include young age, multiple pregnancy, DM and early third trimester preeclampsia in previous pregnancy.

Such patients should receive greater attention. The development of hypertension and increasing edema increase the concern so that patients should be managed more carefully intervals, preferably in a high risk clinic.

There is evidence that availability to emergency transportation to a facility is efficacious in reducing overall morbidity and mortality. Ideally, every admitted case should have a file including detailed information about all the services provided. The registration process would be rendered easier with the implementation of computer-based systems that should incorporate interdepartmental exchange of information. U/S evaluation by senior staff members are recommended to all cases.

Management of emergency admissions should involve senior obstetric and anesthetic staff, who is not only participate in term of their experience but also provide continuous supervision and, whenever necessary, guide to the trainees.

Development and implementation of practice guide lines and management protocol for cases of severe preeclampsia and eclampsia.

Eclampsia, along with many other maternal emergencies requires admission to an intensive care unit, where the combined abilities of obstetricians, anethetics and other blend together to provide continuous maternal and fetal monitoring, cardiac, respiratory, renal, hepatic and neurological supportive treatment.

Further prospective studies and meticulous documentation of the findings from different governorate are needed to establish the incidence, clinical pattern and the impact of this problem in order to guide healthcare planning.

Alternative strategies in the form of early detection, monitoring, and supportive care might be the best ways to help both mothers and babies.

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