

“Prevalence and Management of Hypertensive Disorders in Third Trimester of Pregnancy in a Teaching Hospital, Khammam”

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ABSTRACT

Hypertensive disorders in pregnancy are one of the major causes of poor pregnancy outcomes and are associated with increased rates of foetal and maternal mortality and morbidity. The main objective of the study is to determine the prevalence of various hypertensive disorders in third trimester of pregnancy and their management. A retrospective study was conducted in obstetrics and gynaecology department in a tertiary care teaching hospital, Khammam, Telangana. Pregnant women at the gestational age of week 29 to 40 were taken for primary evaluation. The data regarding demographic details, obstetrics history presenting complaints, diagnosis, current medications, and blood pressure monitoring, antihypertensive drugs prescribed were collected and evaluated. A total of 200 pregnant women were taken in the study, out of which 157 patients were diagnosed with hypertension. The overall prevalence of hypertensive disorders in pregnancy was 78.5%. The prevalence of Preeclampsia, gestational hypertension, chronic hypertension, and eclampsia were 8.3%, 54.8%, 29.3%, 7.6% respectively. Highest prevalence of hypertension was occurred in age group of 20-25 years (64.9%) and multigravidae patients (52.8%). A majority of

patients 65.6% were on monotherapy whereas 34.3% were on combination therapy. Amlodipine was the commonly prescribed antihypertensive as monotherapy (56.3 %) as well as in combination therapy (i.e. 38.9 % amlodipine with atenolol). Our study concluded that the prevalence of hypertensive disorders in pregnancy was high. Amlodipine was the commonest prescribed antihypertensive in monotherapy and combination, as it is safest during pregnancy.

Keywords: *Hypertension in pregnant women, Types of Hypertension, Prevalence, Management etc.*

INTRODUCTION

Hypertension is the most common medical problem encountered during pregnancy [1]. These hypertensive disorders are one of the major causes of pregnancy-related maternal deaths. The hypertension in pregnancy is the main cause for maternal mortality and morbidity all round the world [2]. Traditionally hypertension is determined as blood pressure above the 140/90 mmHg, however, if the pressure is above 180/120mmHg have been considered as emergency crisis. It can lead to severe complications and sheer in risk of heart disease, stroke and sometimes death.

The working group on high blood pressure in pregnancy the national high blood pressure in education program is classified hypertension into four categories [3].1)Chronic hypertension 2)Pre-eclampsia 3)Eclampsia 4) Gestational hypertension.

Chronic hypertension is defined as that which appears before 20 weeks of pregnancy. Chronic hypertension is associated with adverse outcomes for both mother and foetus. For the mother, the following risks are heightened;

superimposed pre-eclampsia, preterm delivery and placental abruption. Babies born to women with pre-existing hypertension are also at increased risk of acute or chronic hypoxia or acidosis. .

Pre-eclampsia usually begins after 20 weeks of pregnancy in a women whose blood pressure had been normal [4-9]. It can lead to serious, even fatal, complications for both mother and baby [4, 10, 11]. Pre-eclampsia is a pregnancy complication characterized by high blood pressure and signs of damage to another organ system, most often the liver and kidneys. Pre-eclampsia effects the arteries carrying blood to the placenta. If the placenta doesn't get enough blood, the baby may receive inadequate blood and oxygen and fewer nutrients. This can lead to slow growth restrictions, low birth weight or preterm birth. In pre-eclampsia condition there is a sudden rise in blood pressure and swelling, mostly in the face hands and feet. It generally develops during the third trimester of pregnancy, if it remains untreated can develop to eclampsia.

Eclampsia is a serious medical condition during pregnancy. While symptoms often appear d pre-eclampsia, if the condition is undetected until it develops into eclampsia, this can create additional complications during pregnancy. If pre-eclampsia is not treated properly it progress to eclampsia. Eclampsia can be fatal if untreated. Generally eclampsia is the final stage of pre-eclampsia and requires immediate medical attention. Women suffers with eclampsia, attached by the seizures. This is known as eclamptic convulsions.

Gestational hypertension is the development of new hypertension in a pregnant women after 20 weeks of gestation without the presence of protein in the urine or other signs of pre-eclampsia [12]. This condition is different from chronic hypertension. Chronic hypertension happens when a women has high blood pressure before she get pregnancy. It also differs from pre-eclampsia and eclampsia. If the pregnant women develops gestational hypertension, it goes back

to normal about 6 weeks after the birth if treated properly. If not treated properly the condition worsens and leads to pre-eclampsia and eclampsia.

In a study, approximately 30% of hypertensive disorders of pregnancy were due to chronic hypertension while 70% of the cases were diagnosed as gestational hypertension/preeclampsia [3].

Methyl dopa, beta blockers (atenolol), calcium channel blockers (nifedipine) are considered as appropriate treatment for hypertension in pregnancy [3]. In chronic hypertension methyl dopa is the first line drug used. In emergency treatment of pre-eclampsia IV hydralazine, labetalol and oral nifedipine are used [3]. Magnesium sulphate in intravenous or intramuscular route was given for the treatment of seizures in eclampsia. Other drugs include lamotrigine, levetiracetam and folic acid supplements.

AIM AND OBJECTIVES

Aim

To determine the prevalence of various hypertensive disorders in third trimester of pregnancy and their management in a tertiary care hospital, Khammam.

Objectives

- To determine the prevalence of various hypertensive disorders in third trimester of pregnancy.
- To evaluate the complications of hypertension in pregnancy.
- To determine the age distribution of various hypertensive disorders in third trimester of pregnancy.
- To determine the comorbid conditions associated with hypertensive disorders in pregnancy.
- To evaluate the occurrence of hypertensive disorders based on the gravidity status of pregnant women.
- To determine the drugs used in the management of various hypertensive disorders in third trimester of pregnancy.

METHODOLOGY

Study Design

A retrospective observation study was conducted to estimate the prevalence of hypertensive disorders and drugs used in the management of hypertensive disorders in third trimester of pregnancy.

Study Site

The study was carried out in Obstetrics and gynaecology department of Mamatha General Hospital, Khammam.

STUDY CRITERIA

Inclusive Criteria

Pregnant women aging between 20-40 years.

Pregnant women with the gestational age of 29-40 weeks.

Sources of Data

Inpatient profile form

Laboratory data record.

Collection of Data

The data was collected by using suitably designed data collection form.

Sample Size

200 Patients.

STATISTICAL ANALYSIS

Statistical analysis was conducted descriptively by using SPSS software Microsoft Office (MS-Word, MS-Excel).

Duration of Study

This study was conducted for a period of six months after obtaining IEC clearance.

RESULTS

All subjects satisfied the inclusion criteria were included as study population. Total of 200 subjects were taken in the study .

6.1 Prevalence of Hypertensive Disorders in Third Trimester of Pregnancy

Subjects were categorised into hypertensive and non-hypertensive. Among 200 subjects 157(78.5%) were found to be hypertensive as shown in the table 1 and figure 1.

	Number of subjects	Percentage (%)
Gestational Hypertension	86	54.8
Pre-Eclampsia	13	8.3
Eclampsia	12	7.6
Chronic Hypertension	46	29.3
Total	157	78.5

Table-1: Prevalence of HDP: (N=157)

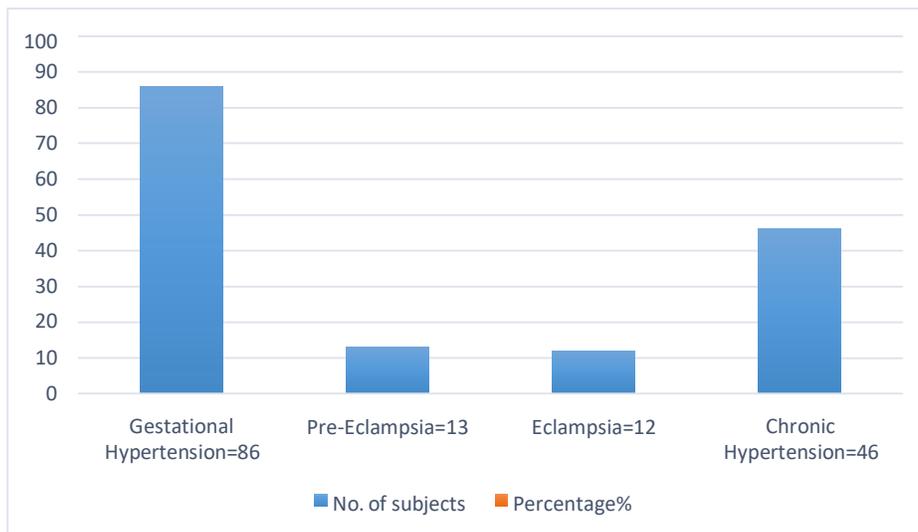


Figure-1: Represents the prevalence among all the hypertensive disorders in the third Trimester of pregnancy

6.2 Age distribution according to type of hypertensive disorder

Out of 200 subjects, 157 patients were diagnosed with Hypertension i.e, 102(64.9%) subjects were in the age group of 20-25 years, 44 (28%) were in the age group of 26-30 years, 9 (5.7%) subjects were in the age group of 31-35 years, 2(1.2%)subjects were in the age group of 36-40 years as shown in the table 2 and figure 2.

Age in years	Gestational Hypertension	Pre-Eclampsia	Eclampsia	Chronic Hypertension	Percentage(%)
	No. of subjects				
20-25	59	9	6	28	64.9
26-30	21	3	5	15	28
31-35	5	0	1	3	5.7
36-40	1	1	0	0	1.2

Table-2: Age distribution according to HTN disorders in pregnancy: (N=157)

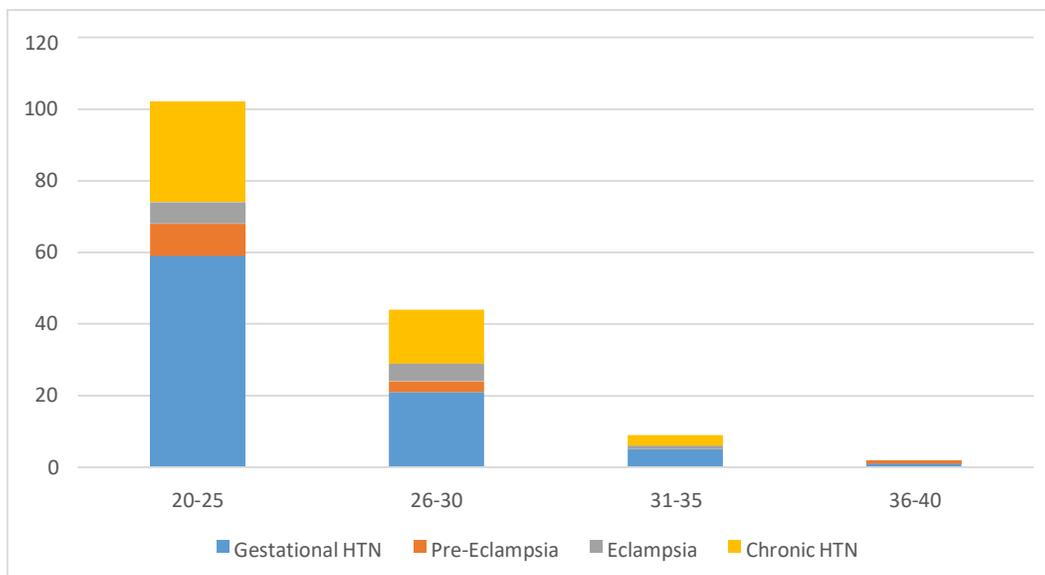


Figure-2:Age distribution according to type of hypertensive disorder

6.3 Gravidity status of the subjects:

In the study Out of 157 subjects, 74(47.1%) were primigravida and 83(52.8%) were multigravida as shown in the table 3 and figure 3.

Gravida	No. of patients	Percentage(%)
Primigravida	74	47.1
Multigravida	83	52.8

Table-3: Gravida of the patients (N=157)

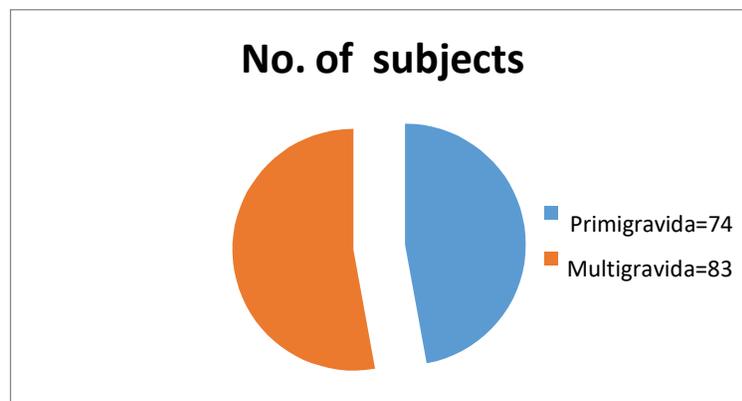


Figure-3: Represents the gravidity of the subjects

6.4 Symptoms of patients with hypertensive disorders of pregnancy

Among 157 subjects, 6 (3.8%) of them were experienced periheral edema and 12 (7.6%) subjects experienced seizures as shown in the table 4 and figure 4 .

	No.of subjects	Percentage
Peripheral edema	6	3.8
seizures	12	7.6

Table-4 : Symptoms of patients with hypertensive disorders (N=157)

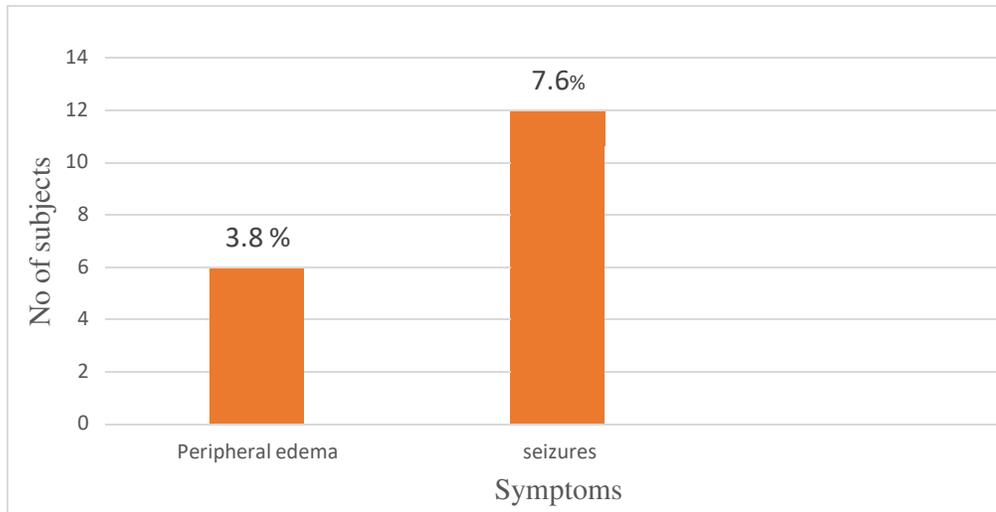


Figure-4 : Representing Symptoms of patients with hypertensive disorders

6.5 Comorbid conditions with hypertension in pregnancy

Some of the patients have other conditions along with the hypertension. Among 157 subjects, 13 (8.2%) subjects have diabetes, 15 (9.5%) are thyroid and 15 (9.5%) have anemia along with hypertension as shown in the table 5 and figure 5.

Condition	no. of subjects	Percentage
DM	13	8.2
Thyroid	15	9.5
Anemia	15	9.5

Table -5 :comorbidities with hypertension (N=157)

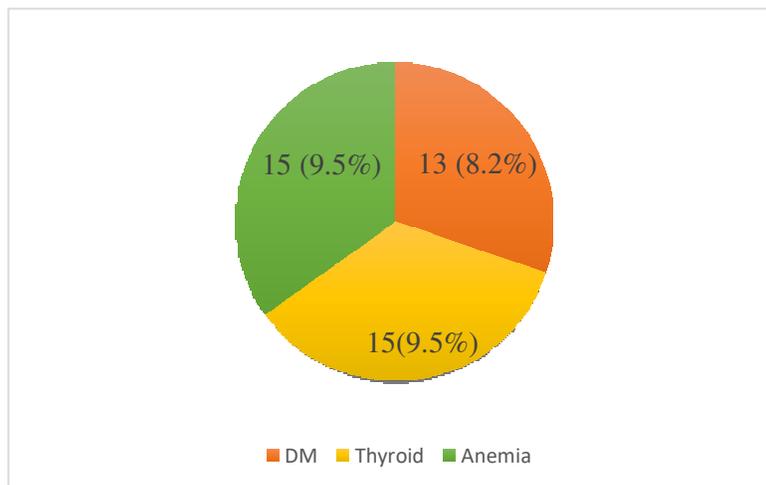


Figure-5 : Representing comorbid conditions with hypertension

6.6 The overall utilization pattern of Anti-Hypertensive drugs in third trimester of pregnancy

Among 157 subjects, most of them are on monotherapy 103(65.6%) and remaining are on combination therapy 54 (34.3%) as shown in table 6 and figure 6.

	no.of subjects	Percentage
Monotherapy	103	65.6
Combination therapy	54	34.3

Table-6: Drug utilising pattern of antihypertensives (N=157)

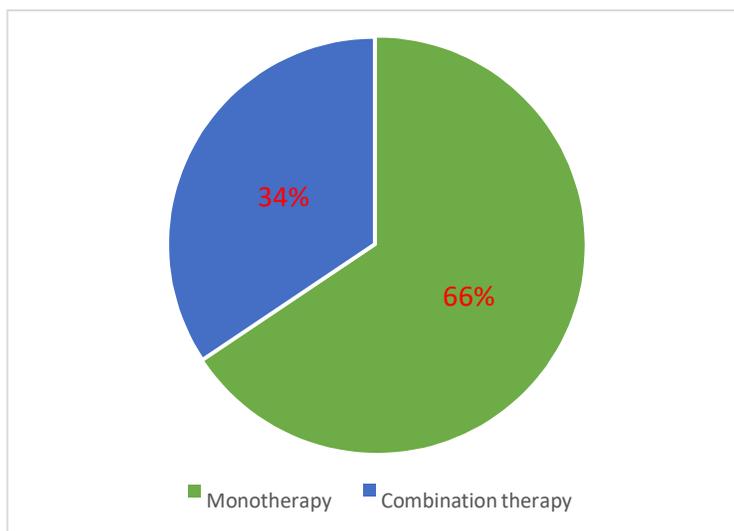


Figure 6: Representing the overall utilization pattern of Anti-Hypertensive drugs

6.7 Prescribing pattern of Anti-Hypertensives as monotherapy

calcium channel blockers in 58(56.3%) subjects and Beta-Blockers in 45(43.7%) subjects are the drugs used as monotherapy in treating hypertension in third trimester of pregnancy as shown in the table 7 and figure 7.

Drug class	No. of patients	Percentage(%)
Calcium channel blockers	58	56.3
Beta-Blockers	45	43.6
Diuretics	0	0
Angiotensin receptor blockers	0	0

Table-7 : Class of Antihypertensives used as monotherapy (N=103)

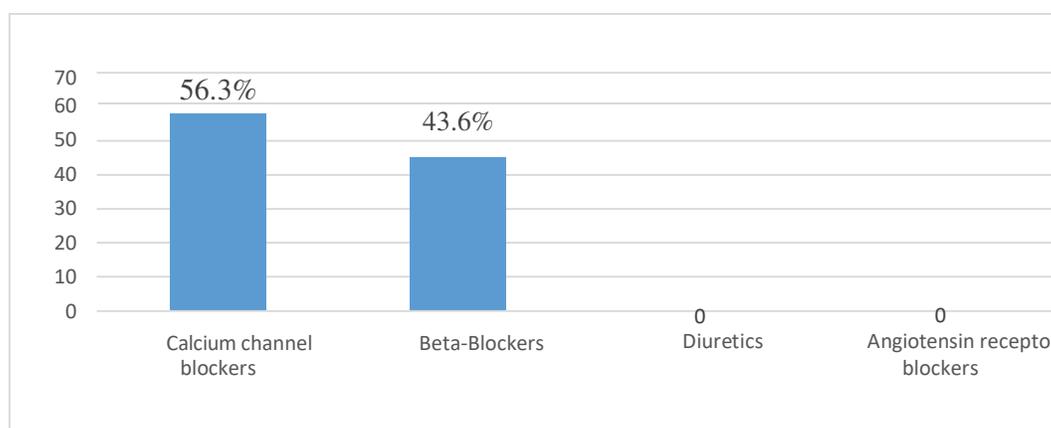


Figure 7: Represents the class of Anti-Hypertensive drugs used as monotherapy used in hypertension

6.8 Utilization of Anti-Hypertensive drugs as monotherapy in treatment of hypertension

Out of 103 subjects ,58 (56.3%) were given with Amlodipine ,25(24.3%) were given with labetalol, and 20 (19.4%) were given with atenolol as shown in the table 8 and figure 8.

Drug	No. of patients	Percentage
Amlodepine(CCB)	58	56.3
Labetolol(Beta-Blocker)	25	24.3
Atenolol(Beta-Blocker)	20	19.4

Table-8 Drugs used as monotherapy in hypertension (N=103)

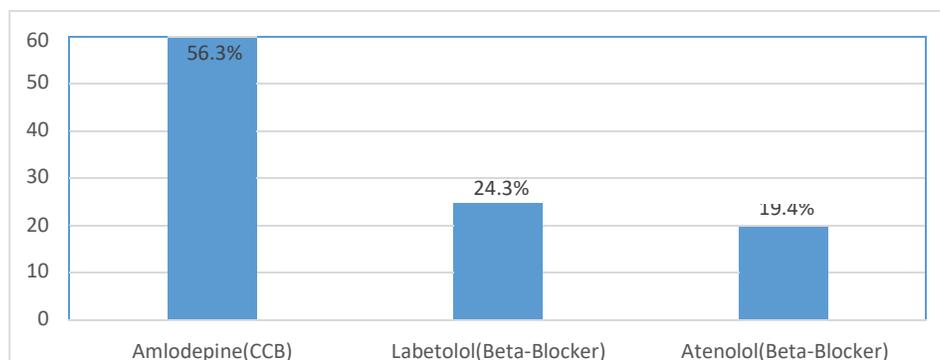


Figure 8: Represents the drugs used in monotherapy of hypertension

6.9 Prescribing pattern of Anti-Hypertensive drugs as combination therapy

Out of 54 subjects, 6(11.1%) were prescribed with ARB+Diuretics, 21(38.9%) subjects were prescribed with CCB+Beta-Blockers, 10(18.5%) subjects were prescribed with CCB+Beta-Blockers+Mgso4, 15(27.7%) subjects were prescribed with Beta-Blockers+Mgso4, 2(3.70%) subjects were prescribed with Beta-Blockers+Livipil as shown in the table 9 and figure9.

Drugs class	No. of patients	Percentage(%)
Angiotensin receptor blockers+Diuretics	6	11.1
Calcium channel blockers+Beta-Blockers	21	38.9
Calcium channel blockers+Beta-Blockers+Mgso4	10	18.5
Beta-Blockers+Mgso4	15	27.7
Beta-Blockers+Livipil	2	3.70

Table-9 :class of antihypertensive drugs used in combination therapy of hypertension (N=54)

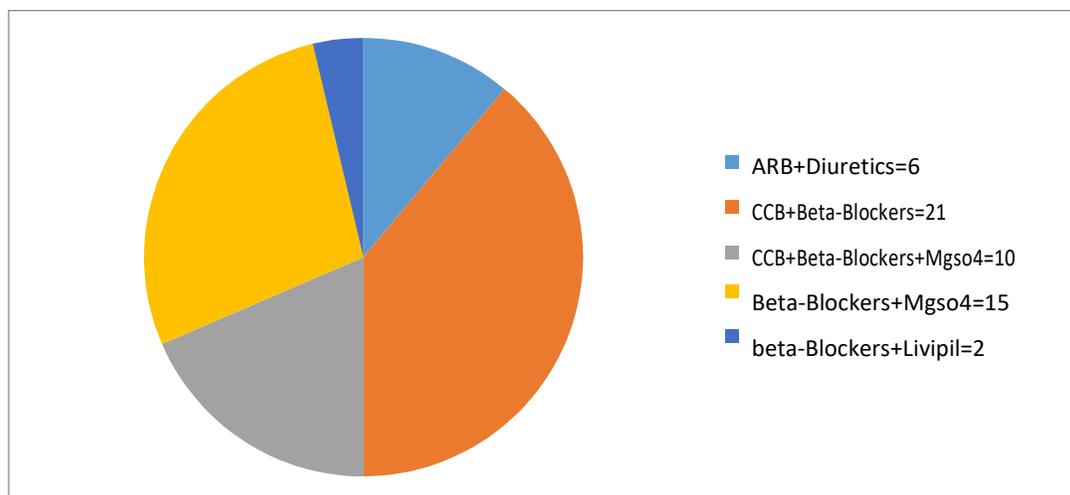


Figure-9 : Represents the class of Anti-Hypertensive drugs used in combination therapy of hypertension

6.10 Utilization of Anti-Hypertensive drugs as combination therapy in treatment of hypertension

Out of 54 subjects, 6(11.1%) were prescribed with telmisartan + hydrochlorthiazide , 21(38.9%) were prescribed with amlodipine + atenolol ,10(18.5%) were prescribed with amlodipine+atenolol+Mgso4 ,10(18.5%) were prescribed with labetalol+Mgso4 , 5(9.2%) were prescribed with atenolol+Mgso4 , 2(3.7%) were prescribed with labetalol + livipil as shown in the table 10 and figure 10.

prescribed drugs	No. of patients	Percentage
Telmisartan+ Hydrochlorthiazide	6	11.1
Amlodipine+Atenolol	21	38.9
Amlodipine+Atenolol+Mgso4	10	18.5
Labetolol+Mgso4	10	18.5
Atenolol+Mgso4	5	9.2
Labetolol+Livipil	2	3.7

Table -10 : Drugs used in combination therapy of hypertension: (N=54)

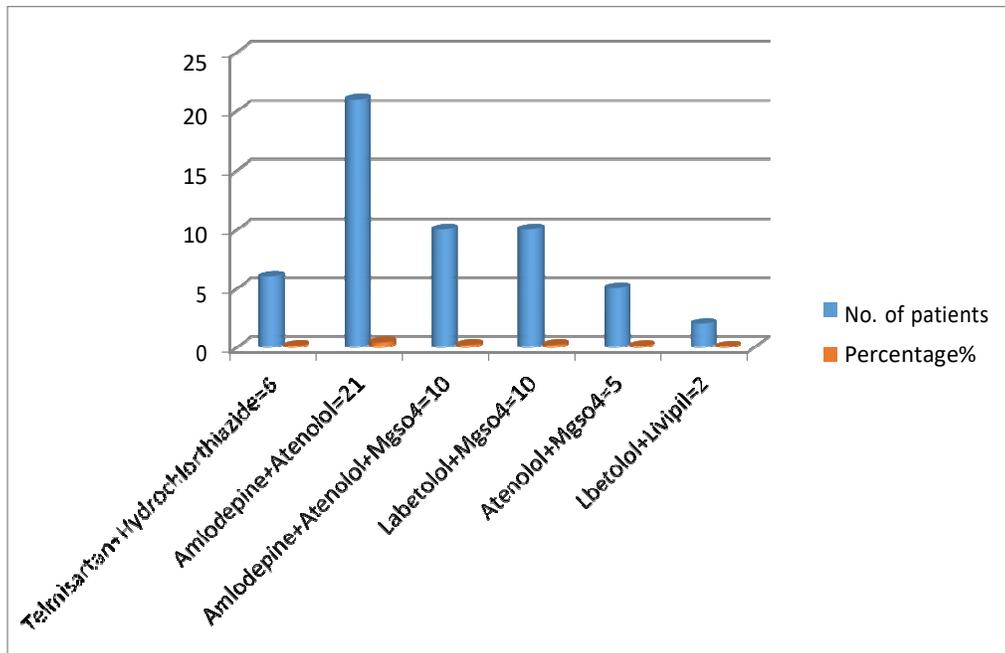


Figure -10 : Representing the drugs used in combination therapy of hypertension

DISCUSSION

The data was subjected to descriptive analysis using SPSS and Microsoft Excel, Here 200 subjects were included in the study out of those 157 subjects were found to be hypertensive during third trimester of pregnancy. So this investigation was designed to find the prevalence of hypertensive disorders of pregnancy. According to our study, the overall prevalence of hypertensive disorders of pregnancy was 78.5 % (0.9%).

In our study highest prevalence of hypertensive disorders was occurred in the age group of 20 to 25 years (64.9%), and the lowest prevalence rate in the age group of 36 to 40 years (1.2%). So the frequency of hypertension is mostly seen in younger women.

In our study Out of 157 patients, Gestational Hypertension of pregnancy was diagnosed in 86(54.8%; 5.1) subjects, Pre-Eclampsia of pregnancy was diagnosed in 13(8.3%; 0.8) subjects, Eclampsia of pregnancy was diagnosed in 12(7.6%; 0.7) subjects, And Chronic hypertension of pregnancy was diagnosed in 46(29.3%; 2.7) subjects of the study population. It shows that of prevalence of

gestational hypertension is high among all age groups and is followed by chronic hypertension respectively. The frequency of Pre-Eclampsia and Eclampsia is very low when compared to Gestational and Chronic Hypertension in pregnant women.

According to our study occurrence of hypertensive disorders was highest in multigravida subjects with 52.8% and primigravidae with 47.1%. It shows that the women with multigravida are more effected with HTN when compared to primigravida.

In our study some of the subjects experienced edema in chronic hypertension. This condition were observed in 6(3.8%) of subjects. Generally Oedema is a common manifestation that can be seen in normal pregnancies. And also the subjects with Eclampsia developed the complication of Seizures. This condition were observed in 12(7.6%) of subjects.

In our study we observed some Co-morbid conditions among Hypertensive subjects i.e., out of 157 subjects, 13(8.2%) with Diabetes, 15(9.5%) with Hypothyroidism, 15(9.5%) with Anaemia.

In our study Most of the subjects are treated with monotherapy i.e., 103(65.6%) and the subjects treated with combination therapy are 54(27%). This study shows that the use of monotherapy is more effective in treating the Hypertension in pregnant women. The most commonly prescribed Anti-Hypertensive drugs as monotherapy for treating hypertension during pregnancy are Calcium Channel Blocker; Amlodipine in 58(56.3%) subjects and in the combination therapy Calcium Channel Blockers+ Beta-Blockers; Amlodepine+Atenolol in 21(38.9%) subjects .

In our study some subjects have the symptom of oedema, they are prescribed with Angiotensin receptor blockers along with Diuretics i.e., Telmisartan+Hydrochlorthiazide drugs as for 3-5 days therapy in 6(11.1%). In

pregnancy these agents should not be preferred because, these drugs harm the foetus by crossing the placenta and cause teratogenicity. The subjects with preeclampsia are given with Mgso4 as prophylaxis therapy to avoid complication of seizures. In our study subjects who experienced Seizures are managed with Mgso4 and Livipil.

CONCLUSION

Our study concluded that the prevalence of hypertensive disorders in third trimester of pregnancy was high. Gestational hypertension has the highest prevalence in hypertensive disorders in pregnancy. Amlodipine was the commonest prescribed antihypertensive in monotherapy and combination, as it is safest during pregnancy.

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