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An Observational Study of Numerous Illness in Pregnant Women including Hypertension, Hypothyroidism, Epilepsy, Anaemia, and Diabetes

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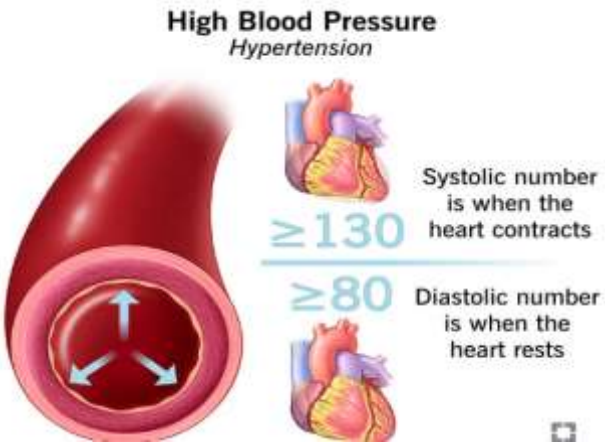
ABSTRACT:

Hypertensive disorders in pregnancy are associated with increased risk of maternal, fetal, and neonatal morbidity and mortality. A variety of oral and parenteral therapies are approved for the treatment of hypertension in pregnancy; methyldopa, labetalol, and nifedipine have been used safely in pregnancy, as has hydrochlorothiazide in those already taking this medication before conception. The diagnosis of hypothyroidism in pregnant patients may be complicated by the fact that pregnancy has a considerable impact on thyroid homeostasis.

INTRODUCTION:

Some women experience health problems during pregnancy. These complications can involve the mother's health, the foetus's health, or both. Even women who were healthy before getting pregnant can experience complications. These complications may make the pregnancy a high risk pregnancy. Hypertension occurs when arteries carrying blood from the heart to the body organs are narrowed. This causes pressure to increase in the arteries. Gestational diabetes occurs when a woman who didn't have diabetes before pregnancy develops the condition during pregnancy. Normally, the body digests parts of your food into a sugar called glucose. Glucose is your body's main source of energy. After digestion, the glucose moves into your blood to give your body energy. In gestational diabetes, hormonal changes from pregnancy cause the body to either not make enough insulin, or not use it normally. Anaemia is lower than the normal number of healthy red blood cells. People with anaemia may feel tired and weak. You are more likely to get iron-deficiency anaemia during pregnancy because your body needs more iron than normal. Your health care provider will check you number of red blood cells during your pregnancy. Hypothyroidism is widely prevalent in pregnant women and the rate of detection, especially in a developing country like India, has not kept pace with the magnitude of the problem. Since hypothyroidism is easily treated, timely detection and treatment of the disorder could reduce the burden of adverse foetal and maternal outcomes, which are very commonly encountered. Epilepsy is a neurological disorder characterized by recurring seizures, which are caused abnormal electrical activity in the brain. Epilepsy is not caused by pregnancy, but women with epilepsy tend to have more seizures during pregnancy due to hormonal changes and potential interactions with medications.

HYPERTENSION:



Force of blood on artery wall (Fig no: 1)

A condition in which the force of the blood against the artery walls is too high. Usually hypertension is defined as blood pressure above 140/90, and is considered severe if the pressure is above 180/120.High blood pressure often has no symptoms. Over time, if untreated, it can cause health conditions, such as heart disease and stroke. Eating a healthier diet with less salt, exercising regularly and taking medication can help lower blood pressure. The most common types of high blood pressure during pregnancy are:

Chronic hypertension: High blood pressure before pregnancy or early in pregnancy (before 20 weeks). This type of hypertension continues after your baby is born. People with chronic hypertension can also develop preeclampsia. This is known as chronic hypertension with superimposed preeclampsia.

Gestational hypertension: High blood pressure in the latter part of pregnancy. Some people with gestational hypertension will go on to develop preeclampsia. Your provider will need to see you more frequently if you develop gestational hypertension.

1.1.3 MANAGEMENT OF HYPERTENTION:

According to NHBPEP, methyldopa, labetalol, beta blockers (other than atenolol), slow release nifedipine, and a diuretic in pre-existing hypertension are considered as appropriate treatment . If a woman's blood pressure is well controlled on an agent pre-pregnancy that may continue it during pregnancy, with the exception of angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers. If restarting drug therapy in women with chronic hypertension, methyldopa is recommended as first line therapy. For emergency treatment in preeclampsia, IV hydralazine, labetalol and oral nifedipine can be used. The ACOG Practice Bulletins also recommend that methyldopa and labetalol are appropriate first-line agents and beta-blockers and angiotensin-converting enzyme inhibitors are not recommended .

HYPOTHYROIDISM:

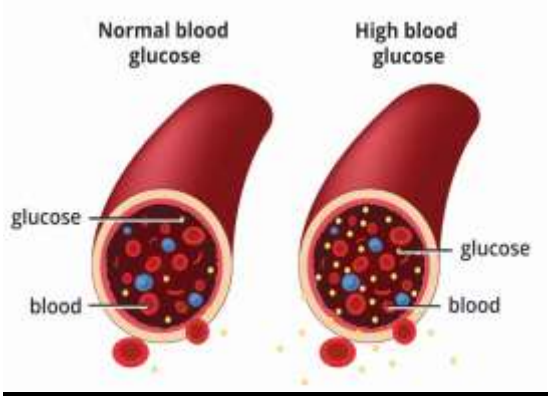
Managing the levels of TSH

Hypothyroidism, also called underactive thyroid, is when the thyroid gland doesn't make enough thyroid hormones to meet your body's needs. The thyroid is a small, butterfly-shaped gland in the front of your neck. Thyroid hormones control the way your body uses energy, so they affect nearly every organ in your body, even the way your heart beats. Without enough thyroid hormones, many of your body's functions slow down. Hypothyroidism can contribute to high cholesterol. If you have high cholesterol, you should get tested for hypothyroidism. Rarely, severe untreated hypothyroidism may lead to myxedema coma, an extreme form of hypothyroidism in which the body's functions slow to a life threatening point. Myxedema coma requires immediate medical treatment Left untreated, hypothyroidism during pregnancy can affect both mother and baby. However, thyroid medicines can help prevent problems and are safe to take during pregnancy. Many women taking thyroid hormone medicine need a higher dose during pregnancy, so contact your doctor right away if you find out you're pregnant. SUBCLINICAL HYPOTHYROIDISM (SCH) is defined as an elevated thyrotropin (TSH) concentration with normal serum levels of thyroxine (T4).

1.2.3 MANAGEMENT OF HYPOTHYROIDISM:

Pregnant women with overt hypothyroidism should be treated with LT4 to prevent obstetric complications and adverse child neurodevelopmental outcomes. LT4 monotherapy is recommended for treatment of hypothyroidism in pregnancy. Since T3 does not cross the placenta, use of T3, T3/T4 combination therapy, or desiccated thyroid may lead to inadequate thyroid hormone availability to the foetus despite normal maternal thyroid function .

DIABETES:



Glucose levels in blood vesicles

Diabetes is a disease that occurs when your blood glucose, also called blood sugar, is too high. Glucose is your body's main source of energy. Your body can make glucose, but glucose also comes from the food you eat. Insulin is a hormone made by the pancreas that helps glucose get into your cells to be used for energy. If you have diabetes, your body doesn't make enough—or any—insulin, or doesn't use insulin properly. Glucose then stays in your blood and doesn't reach your cells. Diabetes raises the risk for damage to the eyes, kidneys, nerves, and heart. Diabetes is also linked to some types of cancer. Taking steps to prevent or manage diabetes may lower your risk of developing diabetes health problems.

1.3.1(A) TYPE 1 DIABETES: If you have type 1 diabetes, your body makes little or no insulin. Your immune system attacks and destroys the cells in your pancreas that make insulin. Type 1 diabetes is usually diagnosed in children and young adults, although it can appear at any age. People with type 1 diabetes need to take insulin every day to stay alive.

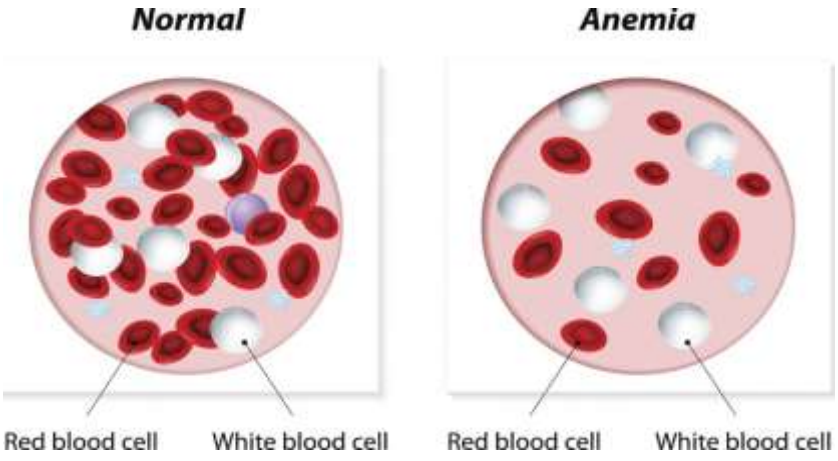
1.3.1(B) TYPE 2 DIABETES: If you have type 2 diabetes, the cells in your body don't use insulin properly. The pancreas may be making insulin but is not making enough insulin to keep your blood glucose level in the normal range. Type 2 diabetes is the most common type of diabetes. You are more likely to develop type 2 diabetes if you have risk factors, such as overweight or obesity, and a family history of the disease.

1.3.2(A) GESTATIONAL DIABETES: Gestational diabetes is a type of diabetes that develops during pregnancy. Most of the time, this type of diabetes goes away after the baby is born. However, if you've had gestational diabetes, you have a higher chance of developing type 2 diabetes later in life. Sometimes diabetes diagnosed during pregnancy is type 2 diabetes.

1.3.4 Treatment of diabetes:

Metformin is a common first-line medication used for gestational diabetes. It is taken as a tablet and helps the body respond better to insulin. Some common side effects include nausea, vomiting, stomach cramps, and diarrhea, but these can be reduced by starting with low dose and increasing slowly.

ANAEMIA:



A condition in which the blood doesn't have enough healthy red blood cells. Anaemia results from a lack of red blood cells or dysfunctional red blood cells in the body. This leads to reduced oxygen flow to the body's organs. Symptoms may include fatigue, skin pallor, shortness of breath, light headacheness, dizziness or a fast heartbeat. Treatment depends on the underlying diagnosis. Iron supplements can be used for iron deficiency. Vitamin B

supplements may be used for low vitamin levels. Blood transfusions can be used for blood loss. Medication to induce blood formation may be used if the body's blood production is reduced. Types of Anaemia During Pregnancy

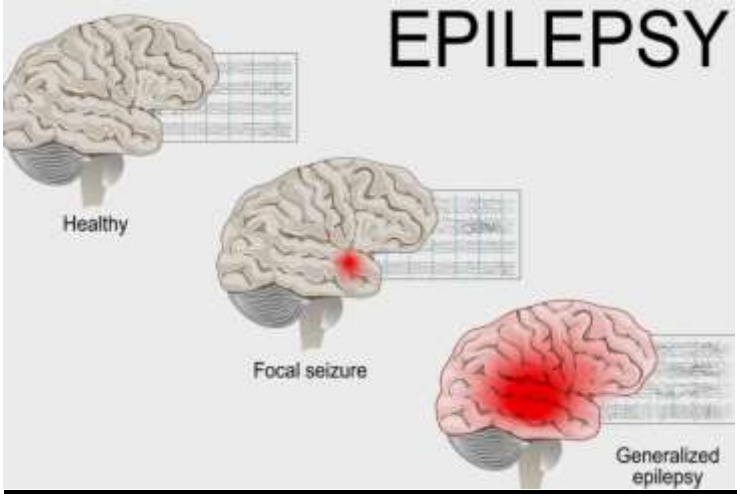
Iron-deficiency anaemia: This type of anaemia occurs when the body doesn't have enough iron to produce adequate amounts of haemoglobin. That's a protein in red blood cells. It carries oxygen from the lungs to the rest of the body. In iron-deficiency anaemia, the blood cannot carry enough oxygen to tissues throughout the body. Iron deficiency is the most common cause of anaemia in pregnancy.

Folate-deficiency anaemia: Folate is the vitamin found naturally in certain foods like green leafy vegetables A type of B vitamin, the body needs folate to produce new cells, including healthy red blood cells. During pregnancy, women need extra folate. But sometimes they don't get enough from their diet. When that happens, the body can't make enough normal red blood cells to transport oxygen to tissues throughout the body. Man made supplements of folate are called folic acid. Folate deficiency can directly contribute to certain types of birth defects, such as neural tube abnormalities (spina bifida) and low birth weight.

Treatment

Mild to moderate anaemia: Treated with daily prenatal vitamin or iron Supplement Severe anaemia: May require blood transfusion, especially if there are severe symptoms or foetal indications Oral iron is usually the first-line treatment, but intravenous (IV) iron can beused if oral iron is not tolerated or effective enough For folate deficiency anaemia, folic acid supplementation is the primary Treatment For vitamin B12 (cobalamin) deficiency anaemia, vitamin B12 supplementation is required Treating the underlying cause of the anaemia is important, but if the patient has severe symptoms, a blood transfusion may be indicated regardless of the cause.

1.5 EPILEPSY:



Epilepsy in pregnant women is a complex condition that requires careful management to ensure the health and safety of both the mother and the developing baby. Here is a brief introduction :Epilepsy is a neurological disorder characterized by recurrent seizures, which are sudden and uncontrolled electrical disturbances in the brain1. While pregnancy does not cause epilepsy, women with epilepsy tend to have seizures more often during pregnancy. This may be due to changes in anti-seizure medication absorption and levels, as well as factors like stress and sleep deprivation.The symptoms of epilepsy in pregnant women are similar to those experienced when not pregnant, including frequent or regular seizures with no known cause. Some women may also experience an aura, a feeling that a seizure is about to occur.

1.5.4 MANAGEMENT OF EPILEPSY

Preconception Planning: Consultation: Prepregnancy consultation with healthcare providers is crucial to discuss medication management, potential risks, and necessary adjustments before conception. Folic Acid Supplementation: Starting folic acid supplementation before pregnancy can help prevent neural tube defects and support foetal development.

Medication Management: Antiepileptic Drugs (AEDs): Careful management of AEDs is essential to maintain seizure control while minimizing foetal exposure to medications.

Avoidance of Valproic Acid: There is growing evidence to avoid the use of valproic acid during pregnancy due to its teratogenic effects.

Therapeutic Drug Monitoring: Regular monitoring of AED levels can help prevent seizure deterioration during pregnancy.

Monitoring and Care: Regular Check-ups: Pregnant individuals with epilepsy should have frequent visits to monitor weight, blood pressure, medication levels, and overall health.

Prental Tests: Additional prenatal tests may be recommended to monitor the baby's growth and well-being. Seizure Reporting: Reporting seizures promptly to healthcare providers is crucial for timely adjustments in medication and monitoring of the baby's health.

Methodology:

MATERIALS AND METHODS:

Design of the study: Prospective Observational study Duration of the study: 5 months.

Study site: Government Hospital, Narsapur.

Data collection procedure: we have visited government hospital and collected of the subject's through case sheets. The data collected is kept confidential.

Data collection instrument: Phenomenology using qualitative interview through standard case collection sheet.

RESULTS:

Table no: 1 HEALTH PROBLEMS DURING PREGNANCY

Among 150 subjects in the study population 30% of the pregnancy women are suffering with hypertension, 24% are suffering with hypothyroidism and 19% of pregnancy women are having anaemia and 15% of pregnancy women were detected with diabetes and remaining 12% of women have suffered with epilepsy.

HEALTH PROBLEMS	NO OF SUBJECT'S	PERCENTAGE	P-VALUE
Hypertension	45	30%	P<0.0035
Hypothyroidism	36	24%	
Anaemia	29	19%	
Diabetes	22	15%	
Epilepsy	18	12%	

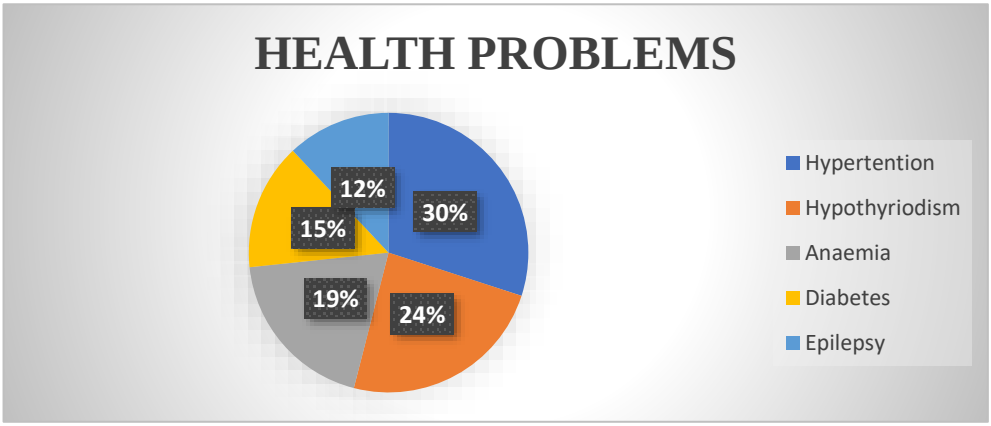


Table no: 2 AGE WISE DISTRIBUTION

In the 150 study population, the subjects range between 18 to 40 years, Among them majority belong to the 20 to 30 years age group i.e. 73% and only 12 % of the study population belong to the range 30 to 40 years.

AGE IN YEARS	NO OF SUBJECT'S	PERCENTAGE%	P-VALUE
18-20	23	15%	P<0.0035
20-30	109	73%	
30-40	18	12%	

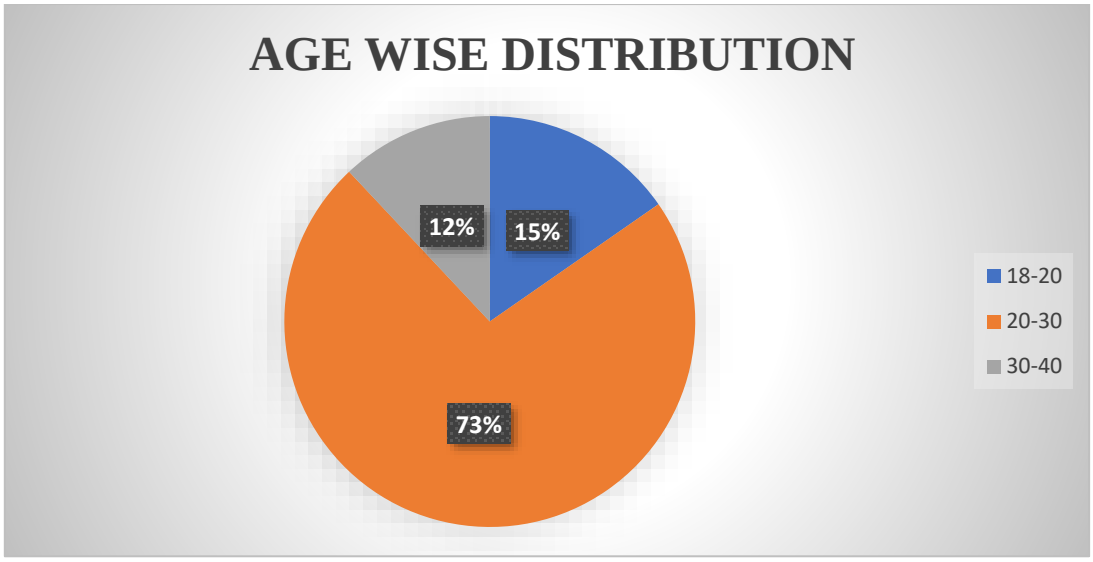
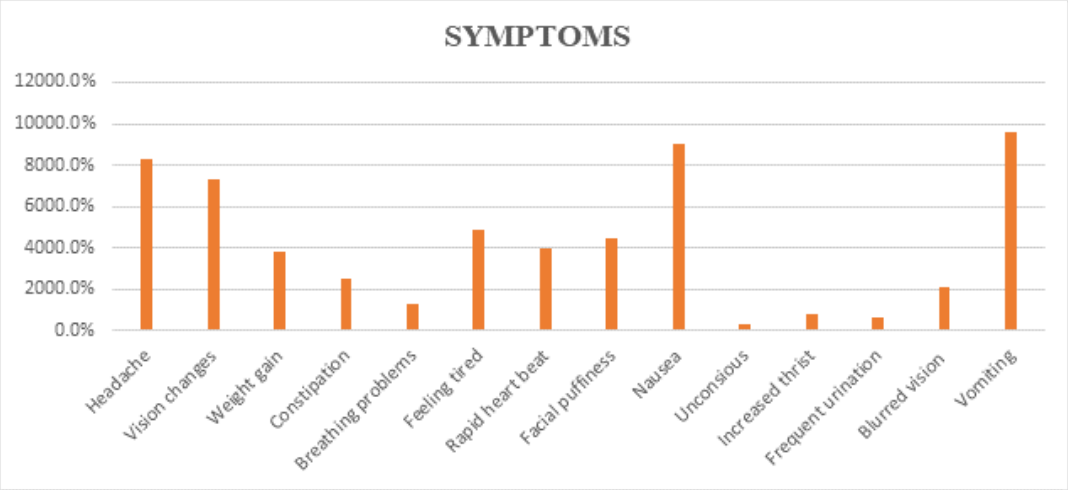


Table no :3 SYMPTOMS

64% of the pregnancy women have experienced vomiting, 60% of the pregnancy women felt nausea, 56.8% are have suffered headache, 49% have observed changes in vision, and least were having 2% of unconscious. These symptoms are experienced throughout the trimesters. The results are shown in table no :3 and figure no: 8

SYMPTOMS	NO OF SUBJECT'S	PERCENTAGE%	P-VALUE
Headache	83	56.1%	
Vision changes	73	49.3%	
Weight gain	38	25.7%	
Constipation	25	16.9%	
Breathing problems	13	8.8%	
Feeling tired	49	33.1%	
Rapid heart beat	40	27.0%	
Facial puffiness	45	30.4%	P<0.0003
Nausea	90	60.8%	
Unconscious	3	2.0%	
Increased thrist	8	5.4%	
Frequent urination	6	4.1%	
Blurred vision	21	14.2%	
Vomiting	96	64.9%	



ANALYSIS IN DIFFERENT TRIMESTERS

Table no: 4(A) TRIMESTER WISE DISTRIBUTION: TRIMESTER-1

In trimester-1: 35% of subjects have suffered with hypertension, were as 24% have experienced hypothyroidism and 18% have suffered with anaemia, and 13% have experienced diabetes. The results are shown in Table no: 4(A) and figure no: 9(A)

Disease	TRIMISTER 1	PERCENTAGE	P-VALUE
Hypertension	22	35.0%	
Hypothyroidism	15	24.0%	
Epilepsy	6	10.0%	P<0.0120
Anaemia	11	18.0%	
Diabetes	8	13.0%	

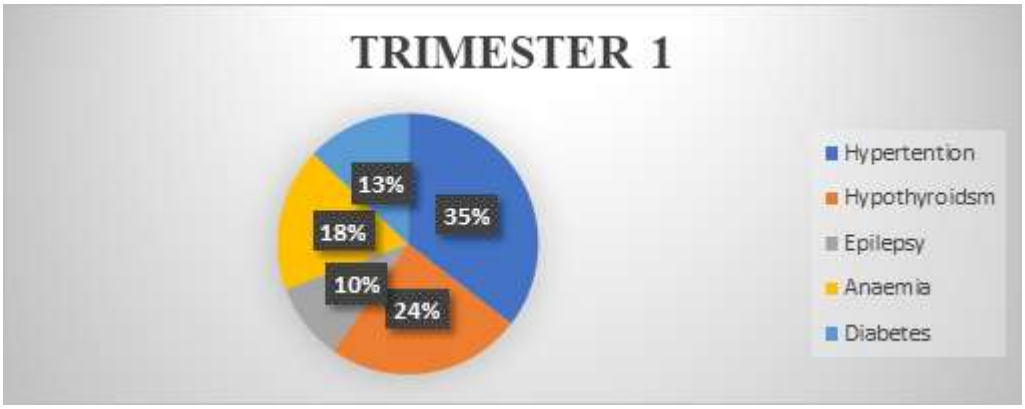


Table no: 4(B) TRIMESTER WISE DISTRIBUTION: TRIMESTER-2

In trimester-2: 28% of subjects have suffered with hypertension, 17% have hypothyroidism and 11% have anaemia, remaining 25% have diabetes. The results are shown in Table no: 4(B) and figure no: 9 (B)

DISEASE	TRIMISTER 2	PERCENTAGE	P-VALUE
Hypertension	13	28.0%	
hypothyroidism	8	17.0%	
Epilepsy	9	19.0%	P<0.0028
Anaemia	5	11.0%	
Diabetes	12	25.0%	

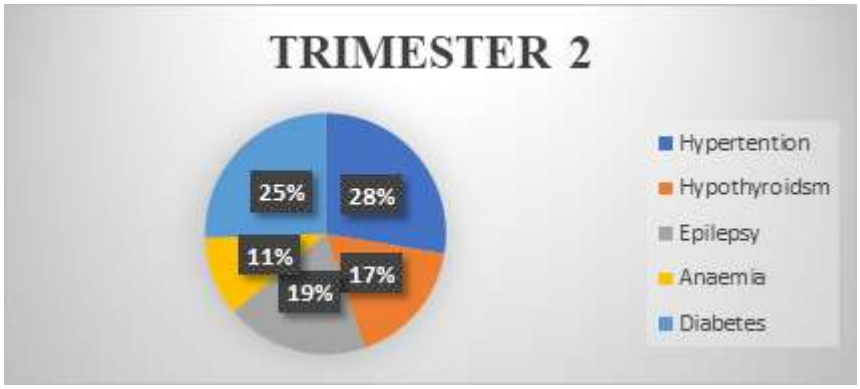


Table no: 4(c) TRIMESTER WISE DISTRIBUTION: TRIMESTER-3

In trimester- 3:21% of women have experienced hypertension, 48% are have hypothyroidism, 21% have anaemia, and remaining 4% a have diabetes. The results are shown in Table no: 4(B) and figure no: 10 (B)

Disease	TRIMISTER 3	PERCENTAGE	P-VALUE
Hypertension	10	21.0%	
hypothyroidism	23	48.0%	
Epilepsy	3	6.0%	P<0.0035
Anaemia	10	21.0%	
Diabetes	2	4.0%	

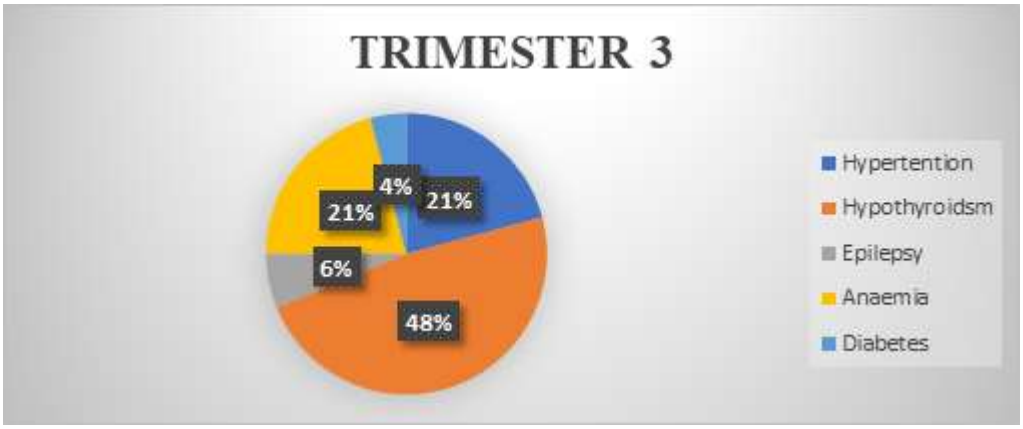


Table no:5 PRESCRIBED MEDICATION

The below listed drugs are commonly prescribed for the pregnant women suffering with hypertension, hypothyroidism, epilepsy, diabetes and anaemia. The results are shown in table no:7 and figure no:12

PRESCRIBED MEDICATION	NO OF SUBJECT'S	PERCENTAGE	P-VALUE
Tab Labetalol drug(200mg)	71	48.0%	
Labetalol injection 20mg	32	21.6%	
Amoxiclav 625mg	83	56.1%	
Metrogyl 400mg	63	42.6%	
Betnesol injection 12mg	34	23.0%	P<0.0035
Rantac	21	14.2%	
Pan 40	67	45.3%	
Metrogyl 400mg	24	16.2%	

FEM injection 500mg	20	13.5%	
Blood pressure monitoring	19	12.8%	
Levothyroxine	15	10.1%	
Misoprost 25mg	9	6.1%	
Insulin injection	13	8.8%	
Rantac injection intravenous	17	11.5%	
Pantop injection intravenous	45	30.4%	
Metrogyl injection intravenous	42	28.4%	

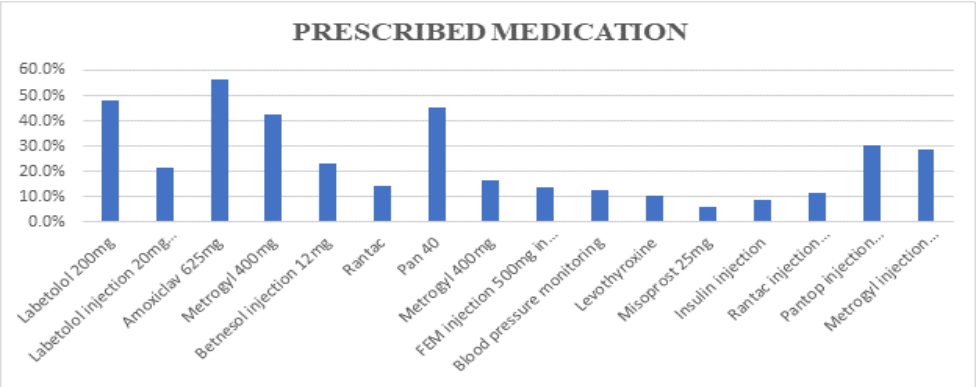


Table no:6 BLOOD PRESSURE

44% of the subjects have the blood pressure range as follows-

Systolic: 90-120 mmHg

Diastolic 60-80 mmHg.

35% of the subjects have the blood pressure range as follows-

Systolic: 140- 150 mmHg

Diastolic: 90 mmHg

The results are shown in Table no:12 and figure no:17

21% of the subjects have the blood pressure range as follows-

Systolic: 160- 180 mmHg

Diastolic: 110 mmHg

BLOOD PRESSURE	NO OF SUBJECT'S	PERCENTAGE	P-VALUE
90/60-120/80	66	44.0%	P<0.0035
140/90-150/90	52	35.0%	
160/110-180/110	32	21.0%	

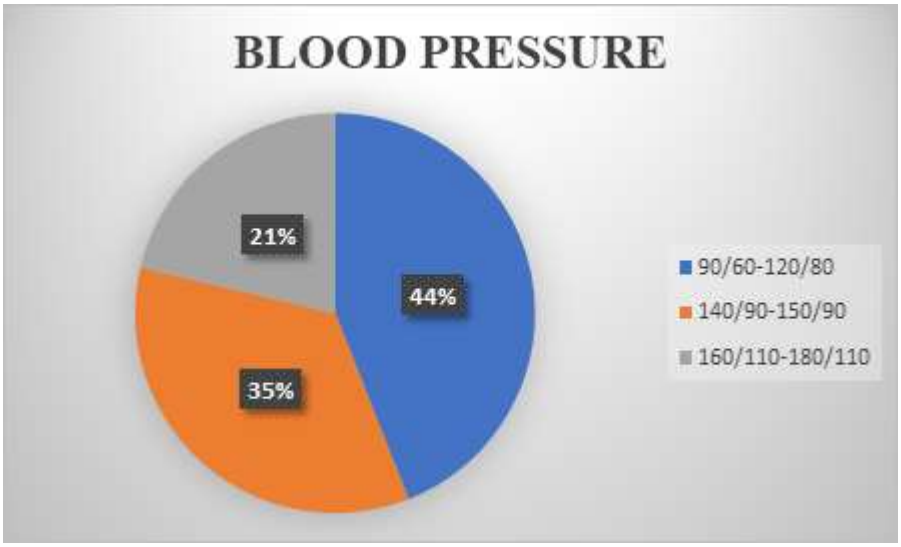
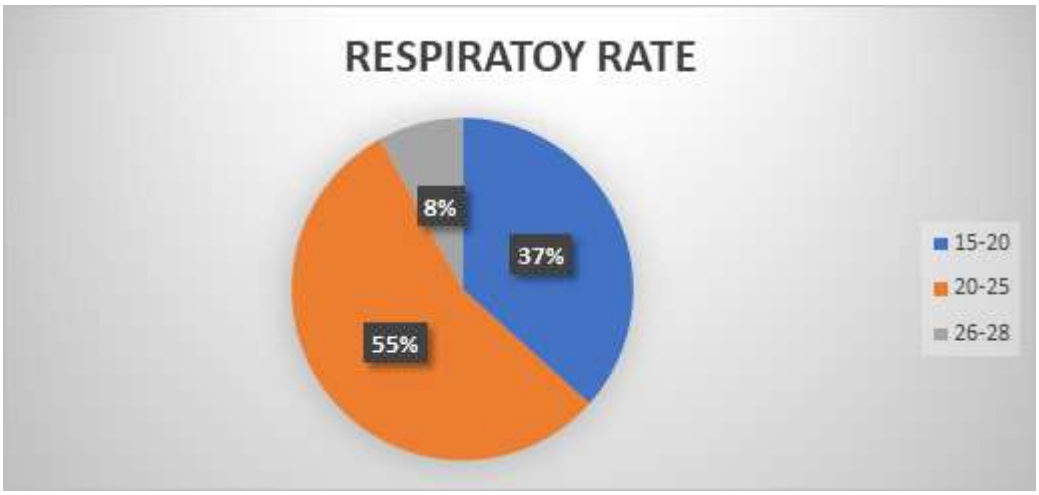


Table no:7 RESPIRATORY RATE

55% of the subjects have the respiratory range between 20-25 bpm, 37% of subjects respiratory range in between 15-20 bpm.

RESPIRATORY RATE	NO OF SUBJECT'S	PERCENTAGE	P-VALUE
15-20	55	37.0%	P<0368
20-25	83	55.0%	
26-28	12	8.0%	



CONCLUSION

- There was a high prevalence of hypertension observed in the study compared to other disorders in the pregnancy women.
- This study also finds that pregnancy women age 20-30 were most effected by the disorder like Hypertension, Hypothyroidism, Epilepsy, Diabetes.
- In trimester-1, 35% of subjects are over all population have suffered with hypertension where as 24% of the population have experienced hypothyroidism, 18% of the population experienced anaemia and 13% of population had suffered with diabetes and 10% of population experienced epilepsy

- In trimester-2, 28% of subjects are overall population have suffered with hypertension where as 17% of the population have experienced hypothyroidism, 11% of the population experienced anaemia and 25% of population had suffered with diabetes. 19 % of population experienced epilepsy
- In trimester-3, 21% of subjects are overall population have suffered with hypertension where as 48% of the population have experienced hypothyroidism, 21% of the population experienced anaemia and 4% of population had suffered with diabetes. 6% of population experienced epilepsy

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