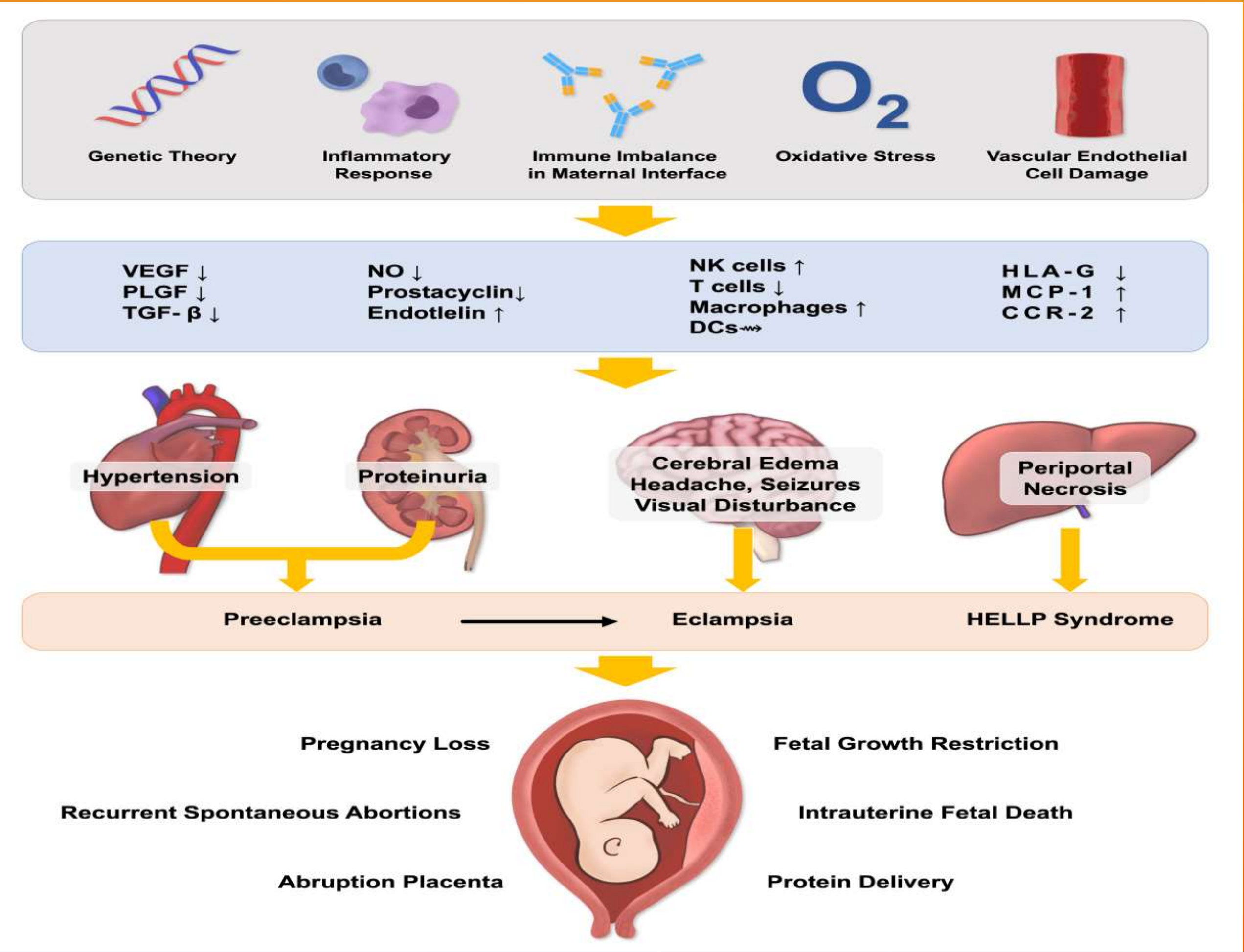


A CASE CONTROL STUDY ON THE ASSOCIATION OF MATERNAL SERUM HOMOCYSTEINE LEVEL WITH THE SEVERITY OF PREECLAMPSIA

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INTRODUCTION

- Hypertensive disorders complicate 5 to 10 percent of all pregnancies.
- Levels of maternal serum homocysteine normally decrease with gestation
- The foetus may use homocysteine to lower levels throughout pregnancy.
- Folic acid supplementation increased red blood cell folate and lowered homocysteine.
- MTHFR and CBS gene mutations cause hyperhomocysteinemia.



AIM OF RESEARCH

- To estimate plasma levels of homocysteine in pregnant women with normal blood pressure, with different grades of preeclampsia and eclampsia.
- To find out whether any significant change in the level of homocysteine exists among the groups.
- To find out whether there is any association between level of homocysteine and the severity of preeclampsia.

METHADODOLOGY

STUDY POPULATION: 200 women were recruited in the study in which 50 were normotensive, 50 cases had non severe preeclampsia, 50 cases had severe preeclampsia and 50 cases had eclampsia.

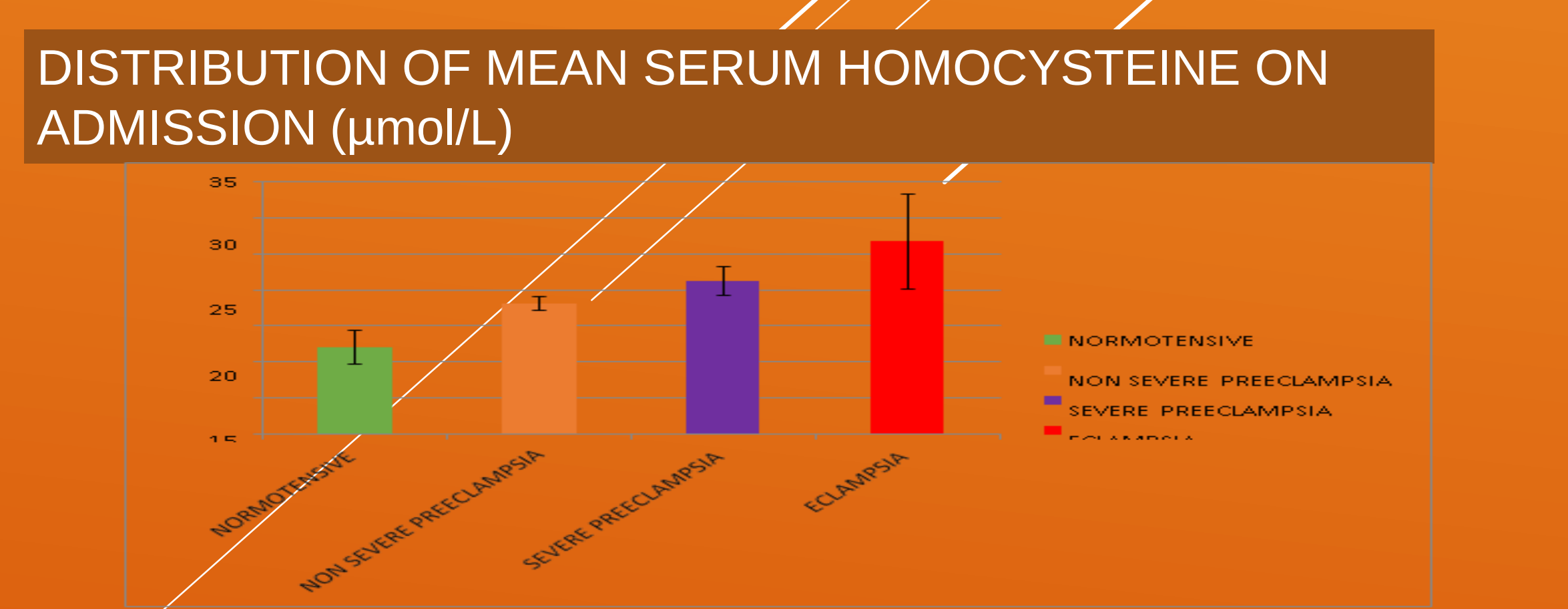
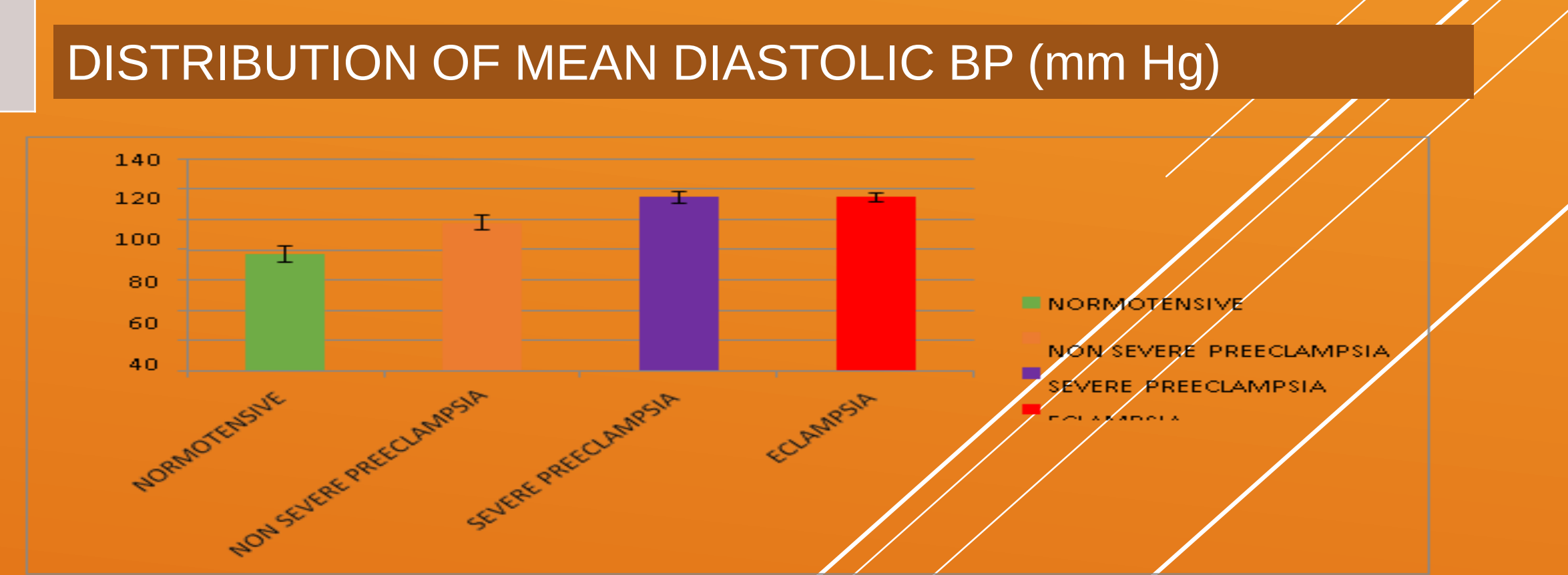
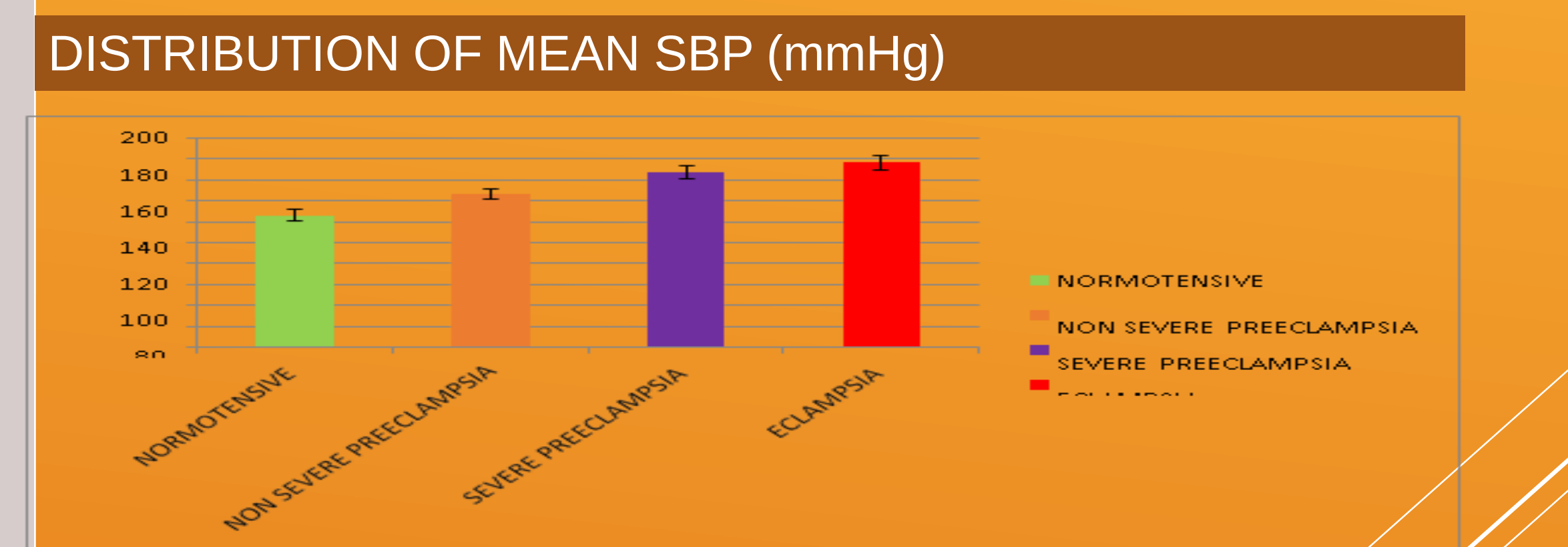
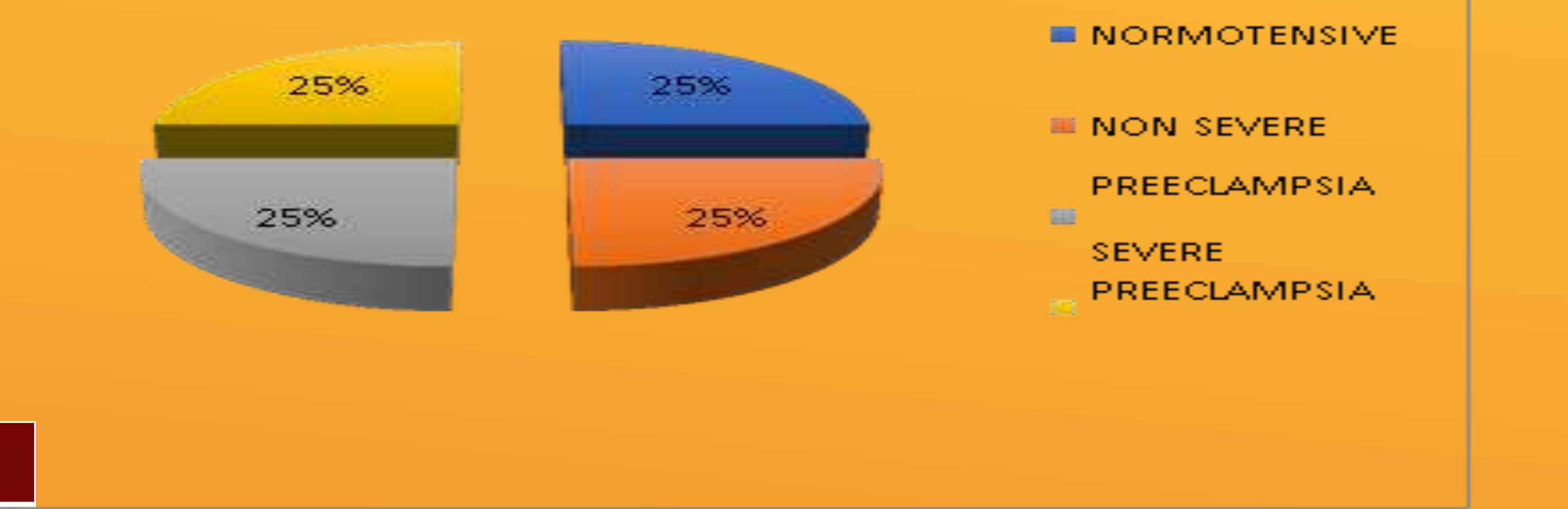
CRITERIA:

INCLUSION	EXCLUSION
Cases: Pregnant women in the gestational age of 28 weeks-42weeks which were further divided into three groups; women with non severe preeclampsia, severe preeclampsia and with eclampsia .Controls: Pregnant women who remain normotensive throughout pregnancy and delivery.	Chronic hypertension, women on antifolate drugs, abruptio placentae, smokers, tobacco chewers, chronic kidney and cardiovascular diseases.

- GROUP 1:** 50 pregnant women who remain normotensive throughout pregnancy and delivery which serve as controls.
- GROUP 2:** 50 pregnant women, GA: 28-42 weeks with non severepreeclampsia, BP $\geq$ 140/90 mm Hg(but less than 160/110mm Hg)for the first time during pregnancy in 2 or more readings 4 hr apart with proteinuria $\geq$ 300mg/24hr or protein dipstick 1+(30mg/dl) or more in random urine sample.
- GROUP 3:** 50 pregnant women, GA: 28-42 weeks with severe preeclampsia ie, BP $\geq$ 160/110mm Hg, protein excretion $\geq$ 5gm /24hr /oliguria ($\leq$ 400ml/24hrs) / platelet count $\leq$ 1,00,000/mm³ / HELLP syndrome/ premonitory symptoms/pulmonary edema.
- GROUP 4:** 50 pregnant women, GA: 28-42 weeks with eclampsia; preeclampsia complicated by convulsion.

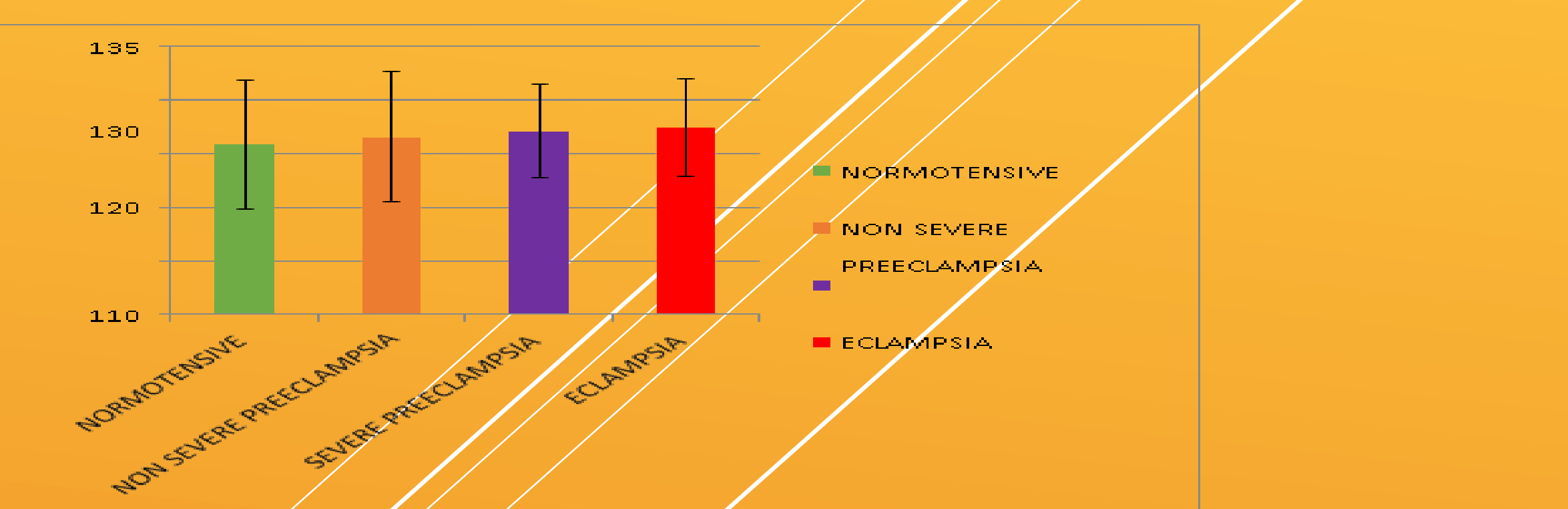
All patients will have their Sr homocysteine assessed at admission. After the diagnosis of pre-eclampsia or eclampsia, a 5ml venous blood sample will be taken from the antecubital vein regardless of fasting status to assess serum homocysteine levels in cases and controls. Samples will be centrifuged for 5-7 minutes at 3000 rpm. Clear serum is transfused in a plastic bottle and refrigerated until analysis. 2-8°C will store samples (stable upto 14 days when refrigerated). Commercial ELISA kits measures Homocysteic acid levels using a double antibody sandwich enzyme linked immunosorbent one-step method test. In precoated enzyme wells, add standard, test sample, and HRP-labelled Homocysteic acid antibodies..

RESULTS



On admission, normotensive individuals had 12.0396 ± 2.3388 μ mol/L blood homocysteine. The mean admission serum homocysteine in non-severe preeclampsia patients was 18.0982 ± 1.0083 μ mol/. On admission, severe preeclampsia patients had a mean serum homocysteine of 21.2466 ± 2.0337 μ mol/L. Serum homocysteine on entry was 26.7404 ± 6.5764 μ mol/L in eclampsia patients. Mean admission serum homocysteine differed from group ($p=0.0251$).

DISTRIBUTION OF MEAN SBP (mm Hg) 12 WK



DISCUSSION

One of the most favored hypothesis of preeclampsia is the endothelial dysfunction secondary to the peroxidation of membrane lipids resulting in altered vascular reactivity, loss of vascular integrity and activation of the coagulation cascade. Elevated circulating homocysteine is a risk factor for endothelial dysfunction and vascular diseases and is found to be associated with preeclampsia. There was significant association of maternal parity with preeclampsia. No association was noted between the socioeconomic status of the patients with preeclampsia or its severity. There was increased incidence of caesarian section noted with increasing severity of preeclampsia . The mean maternal serum homocysteine level in normotensive patients and patients with non severe preeclampsia, severe preeclampsia and eclampsia were 12.0396 ± 2.3388 μ mol/L, 18.0982 ± 1.0083 μ mol/L, 21.2466 ± 2.0337 μ mol/L & 26.7404 ± 6.5764 μ mol/L respectively. Henceforth, increased maternal serum homocysteine levels on admission are seen with increased severity of preeclampsia.

CONCLUSIONS

Maternal hyperhomocysteinemia seems to have causal role in the etiopathogenesis of pre-eclampsia /eclampsia. The measurement of serum homocysteine in all pregnant women as a part of routine antenatal check-up and thereby monitoring and management of hyperhomocysteinemia in antenatal period can be helpful in future.