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To study the relevant laboratory investigations in cases of pre-eclampsia

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Abstract

Background: The present study was conducted with an aim to Study the relevant Laboratory investigations in cases of Pre-eclampsia of in Department of Obstetrics and Gynecology, Index Medical College Hospital & Research Centre, Indore M.P.

Result: From the observation Table No. 1 it is clear that platelet count was < 1 Lac /cu mm in 14.07% of mild pre-eclampsia, 72% of severe pre-eclampsia and 75% of eclampsia patients.

From the observation Table No.2 it is clear that total bilirubin was > 1.2 mg/dl in 4.68% of mild pre-eclampsia, 30% of severe pre-eclampsia and 34.37% of eclampsia patients.

From the observation Table No.3 it is clear that SGOT was > 72 IU/L in 1.57% of mild pre-eclampsia, 14% of severe pre-eclampsia and 21.88% of eclampsia patients.

From the observation Table No.4 it is clear that SGPT was > 72 IU/L in 3.13% of mild pre-eclampsia, 12% of severe pre-eclampsia and 18.75% of eclampsia patients.

Conclusion: Platelet count was found to be <1 lac /cumm in significant number of severe pre-eclampsia and eclampsia patients in comparison to control group.

Hyperbilirubinemia was seen in small groups of pre-eclampsia and eclampsia patients. Deranged liver enzyme levels were also found in small group of pre-eclampsia and eclampsia patients. Deranged coagulation profile was also seen a small group of pre-eclampsia and eclampsia patients but not found significant.

Keywords: Pre-eclampsia, platelet count, serum bilirubin, serum SGOT & serum SGPT

Introduction

Pre-eclampsia complicates around 5% of pregnancies and is a major cause of iatrogenic preterm birth. Hypertensive disorders of pregnancy are responsible for over 60,000 maternal deaths worldwide annually [1]. Both maternal and neonatal morbidity and mortality are increased in pregnancies complicated by pre-eclampsia, and there is significant personal cost to families affected by the disease and economic implications for the health service [2].

Pre-eclampsia is a diverse, multiorgan group of related disease processes that occurs in up to 5%–8% of pregnancies after 20 weeks' gestation. The presentation is highly variable, but generally includes the combination of maternal hypertension and proteinuria. The etiology of the disease is likely multifactorial, and its initial presentation may be mild or severe, including eclamptic grand mal seizures [3].

Material & Method

The present study was conducted in Department of Obstetrics and Gynecology, Index Medical College Hospital & Research Centre, Indore M.P. It is a prospective study and study period extended from August 2017 to August 2018.

Selection of cases

The cases were selected from patients who were admitted in labor room as emergency cases, irrespective of age and parity. On a specially designed proforma for the study, the patients particulars like detail obstetric history, examination and laboratory findings were recorded. Patients were matched according to gestational age and Body Mass Index. Informed consent was taken from each pregnant women enrolled in study.

214 cases were studied, thorough examination done including follow-up visits upto 3 months.

Patients were divided into mild pre-eclampsia, severe pre-eclampsia, eclampsia and control groups, containing 64, 50, 32, 68 patients respectively.

Control groups consisted of uncomplicated normotensive pregnancies.

Mild pre-eclampsia was defined as systolic blood pressure of 140 mmHg or greater or a diastolic blood pressure of 90 mmHg confirmed 6 hrs. apart and proteinuria + 1 or + 2.

A woman with pre-eclampsia who has new onset grand mal seizures is considered to have eclampsia.

Inclusion Criteria

- Singleton pregnancies.
- None of the subject were in active labor.
- No signs of infection.
- All subjects received folic acid supplementation until 12 weeks of gestation.

Exclusion Criteria

- Essential hypertension suggested by history or

documentation of hypertension in pre-pregnant state or hypertension before 20 weeks or gestation.

- Cardiovascular or renal disease.
- Liver disease.
- Multiple pregnancy.
- Diabetes Mellitus.
- Inflammatory or infective disorders.
- Coincidental seizures in pregnancy
- History or documentation of epilepsy in pre-pregnant state.
- Space occupying lesion in brain like tuberculoma or brain tumor.
- Trauma to brain.
- Hyperpyrexia

Results

Table 1: Platelet count (lac/cumm)

Platelet count (lac/cumm)	Mild Preeclampsia		Severe Pre-eclampsia		eclampsia		Normal	
	No.	%	No.	%	No.	%	No.	%
>1 lac	55	85.93	14	28	8	25	68	100
<1 lac	9	14.07	36	72	24	75	0	0
Total	64		50		32		68	

From the observation Table No. 1 it is clear that platelet count was < 1 Lac /cu mm in 14.07% of mild pre-eclampsia, 72% of severe pre-eclampsia and 75% of eclampsia patients.

Table 2: Total Serum Bilirubin (mg/dl)

Total Serum Bilirubin (mg/dl)	Mild Preeclampsia		Severe Pre-eclampsia		eclampsia		Normal	
	No.	%	No.	%	No.	%	No.	%
> 1.2	3	4.68	15	30	11	34.37	4	5.88
< 1.2	61	95.32	35	70	21	65.63	64	94.12
Total	64		50		32		68	

From the observation Table No. 2 it is clear that total bilirubin was > 1.2 mg/dl in 4.68% of mild pre-eclampsia, 30% of severe pre-eclampsia and 34.37% of eclampsia patients.

Table 3: Serum SGOT Level (IU/L)

Serum SGOT Level (IU/L)	Mild Preeclampsia		Severe Pre-eclampsia		eclampsia		Normal	
	No.	%	No.	%	No.	%	No.	%
> 72	1	1.57	7	14	7	21.88	0	0
< 72	63	98.43	43	86	25	78.12	68	100
Total	64		50		32		68	

From the observation Table No. 3 it is clear that SGOT was > 72 IU/L in 1.57% of mild pre-eclampsia, 14% of severe pre-eclampsia and 21.88% of eclampsia patients.

Table 4: Serum SGPT Level (IU/L)

Serum SGPT Level (IU/L)	Mild Preeclampsia		Severe Pre-eclampsia		eclampsia		Normal	
	No.	%	No.	%	No.	%	No.	%
> 72	2	3.13	6	12	6	18.75	0	0
< 72	62	96.87	44	88	26	81.25	68	100
Total	64		50		32		68	

From the observation Table No. 4 it is clear that SGPT was > 72 IU/L in 3.13% of mild pre-eclampsia, 12% of severe pre-eclampsia and 18.75% of eclampsia patients.

Discussion

Ueland PM *et al.* (2004) [4] in their study had found that a significantly higher number of eclamptic patients (18.2%) and 6% of pre-eclamptic patients suffered a low platelet count (< 50,000 / cu mm)

Christensen B *et al.* [5] had found that complicated cases of pre-eclampsia and eclampsia had platelet count significantly lower.

Herbert V *et al.* [6] believe that severe hyper-bilirubinemia is uncommon in pre-eclampsia and eclampsia.

Ueland PM *et al.* [4] had observed a bilirubin value > 5 mg/dl in

0.6 and 12.1% of pre-eclamptic and eclamptic patients respectively.

Christensen B *et al.* [5] had found that in complicated cases of pre-eclampsia and eclampsia, liver enzymes SGOT and SGPT were significantly higher.

Herbert V *et al.* [7] had found abnormally elevated liver enzymes were seen in 45.2% of the severely pre-eclampsia patients.

Christensen B *et al.* [5] had found that in complicated cases of pre-eclampsia and eclampsia, liver enzymes SGOT and SGPT were significantly higher.

Herbert V *et al.* [7] had found abnormally elevated liver enzymes were seen in 45.2% of the severely pre-eclampsia patients.

The pathophysiology of pre-eclampsia is not fully understood. Pre-eclampsia is a disorder characterized by abnormal placentation with subsequent maternal inflammatory and vascular response. Improved understanding of the underlying pathophysiology, particularly relating to the role of angiogenic factors, has emerged. It is established that, in normal pregnancies, trophoblasts help regulate spiral artery remodeling and enable normal vasculogenesis by releasing pro-angiogenic factors such as vascular endothelial growth factor (VEGF) and placental growth factor (PlGF) [8].

The developing understanding of pathophysiology has placed intense interest in the potential role of biomarkers in prognostic modeling. Significant differences were seen in the concentration of soluble endoglin (sEng) in pregnancies associated with pre-eclampsia versus controls at both 15 and 20 weeks' gestation [9].

Conclusion

Platelet count was found to be $<1 \text{ lac / cumm}$ in significant number of severe pre-eclampsia and eclampsia patients in comparison to control group.

Hyperbilirubinemia was seen in small groups of pre-eclampsia and eclampsia patients. Deranged liver enzyme levels were also found in small group of pre-eclampsia and eclampsia patients. Deranged coagulation profile was also seen a small group of pre-eclampsia and eclampsia patients but not found significant.

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