ORIGINAL RESEARCH

Assessment of outcomes in preeclampsia and eclampsia in correlation with LDH

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Abstract

Background: Preeclampsia is a hypertensive disease of pregnancy is the third most common cause of maternal mortality. The present study was conducted to assess outcomes in preeclampsia and eclampsia in correlation with LDH.

Materials & Methods: 80 antenatal women of different gravid based on serum LDH level , they were classified into group I with LDH level <600 IU/l, group II with 600-800 IU/l and group III with >800 IU/l. Group IV was normotensive pregnant group (control). Each group comprised of 20 subjects. Maternal and perinatal outcome was recorded.

Results: 24% patients in group I, 10% in group II had SBP of <140 mm Hg. 50% in group I, 38% in group II and 35% in group III had SBP of 140- 160 mm Hg and 26% in group I, 52% in group II and 65% in group III had SBP of >160 mm Hg. Eclampsia was seen in 2 in group I, and 3 in group III, abruption in 1 in group I, 2 in group II and 3 in group III, DIC in 2 in group I, 1 in group II and 2 in group III, HELPP syndrome 1 in group I, 2 in group II and III respectively. Renal failure 2 in group I, 1 in group II, 3 in group III and 1 in group IV and mortality was seen in 1 in group I, 3 in group and 2 in group III. The difference was non-significant (P> 0.05). Group I, group II, group III and group IV had APGAR at 1 min <7 was in 14, 12, 18 and   20 patients. APGAR at 5 mins<7 was seen in 8, 5, 12 and 18. Low birth weight (LBW) was seen in 5, 7, 10 and 1, VLBW in 3, 4, 6 and 1. Prematurity in 5, 4, 7 and 1> NICU admission was seen in 3, 5, 9 and 2, neonatal sepsis in 2, 4, 5 and 1 and perinatal mortality was seen in 2, 3 and 6. The difference was significant (P< 0.05).

Conclusion: Maternal and perinatal complications were associated with higher LDH levels in preeclampsia patients. Serum LDH levels may be performed in all patients of preeclampsia and can be used to predict the prognosis of preeclampsia.

Key words: Preeclampsia, APGAR, LDH

Introduction

Preeclampsia is a hypertensive disease of pregnancy is the third most common cause of maternal mortality. It is characterized by high blood pressure and a large amount of protein in the urine. Hypertension complicates 6-8% of all pregnancies and along with haemorrhage and infections make triad.[1] Preeclampsia and eclampsia places women at a greater risk for placental abruption, acute renal failure, disseminated intravascular coagulation, pulmonary edema and even death.These women are at increased risk of having preterm deliveries, babies

with low birth weight and Intra uterine growth retardation.[2] It usually occurs in third trimester of pregnancy and worsens overtime. It is characterized by abnormal vascular response to placentation that is associated with increased systemic vascular resistance, enhanced platelet aggregation, activation of coagulation system and endothelial cell dysfunction.[3]

Lactate dehydrogenase (LDH) is mainly an intracellular enzyme. It is responsible for interconversion of pyruvate and lactate in the cells. Its levels are several times greater inside the cells than in the plasma.[4] Serum LDH is abnormal in a host of disorders, therefore the total serum LDH is highly sensitive but nonspecific test. In order to optimize the diagnostic value, LDH isoenzymes can be measured.[5]This can be further used as help in making decision, regarding the management strategies to improve the maternal and fetal outcome.[6]The present study was conducted to assess outcomes in preeclampsia and eclampsia in correlation with LDH.

Materials & Methods

The present study comprised of 80 antenatal women of different gravida. All were informed regarding the study and written consent was obtained.

Demographic profile such as name, age, etc. was recorded. In all, systolic and diastolic blood pressure was measured by using palpatory method. 5 ml of venous blood was collected. Serum LDH levels were measured by continuous spectrophotometric pyruvate method. Based on serum LDH level , they were classified into group I with LDH level <600 IU/l, group II with 600-800 IU/l and group III with >800 IU/l. Group IV was normotensive pregnant group (control). Each group comprised of 20 subjects. Maternal and perinatal outcome was recorded. Results were tabulated and assessed statistically. P value less than 0.05 was considered significant.

Results

Table I Association of systolic blood pressure and serum LDH level

SBP	Group I	Group II	Group III
<140 mm Hg	24%	10%	0%
140-160 mm Hg	50%	38%	35%
>160 mm Hg	26%	52%	65%

Table I shows that 24% patients in group I, 10% in group II had SBP of <140 mm Hg. 50% in group I, 38% in group II and 35% in group III had SBP of 140- 160 mm Hg and 26% in group I, 52% in group II and 65% in group III had SBP of >160 mm Hg.

**Table II Comparison of maternal outcome**

Parameters	Group I	Group II	Group III	Group IV	P value
Eclampsia	0	2	3	0	0.21
Abruption	1	2	3	0	0.27
DIC	2	1	2	0	0.93
HELPP syndrome	1	2	2	0	0.95
Renal failure	2	1	3	1	0.05
Mortality	1	3	2	0	0.36

Table II shows that eclampsia was seen in 2 in group I, and 3 in group III, abruption in 1 in group I, 2 in group II and 3 in group III, DIC in 2 in group I, 1 in group II and 2 in group III, HELPP syndrome 1 in group I, 2 in group II and III respectively. Renal failure 2 in group I, 1 in group II, 3 in group III and 1 in group IV and mortality was seen in 1 in group I, 3 in group and 2 in group III. The difference was non- significant (P> 0.05).

Table III Assessment of perinatal outcome

Parameters	Group I	Group II	Group III	Group IV	P value
APGAR 1 min<7	14	12	18	20	0.94
APGAR 5 mins<7	8	5	12	18	0.87
LBW	5	7	10	1	0.01
VLBW	3	4	6	1	0.05
Prematurity	5	4	7	1	0.05
NICU admission	3	5	9	2	0.02
Neonatal sepsis	2	4	5	1	0.04
Perinatal mortality	2	3	6	0	0.01

Table III, graph I shows that group I, group II, group III and group IV had APGAR at 1 min<7 was in 14, 12, 18 and 20 patients. APGAR at 5 mins<7 was seen in 8, 5, 12 and 18. Low birth weight (LBW) was seen in 5, 7, 10 and 1, VLBW in 3, 4, 6 and 1. Prematurity in 5, 4, 7 and 1> NICU admission was seen in 3, 5, 9 and 2, neonatal sepsis   in 2, 4, 5 and 1 and perinatal mortality was seen in 2, 3 and 6. The difference was significant (P< 0.05).

Graph I Assessment of perinatal outcome
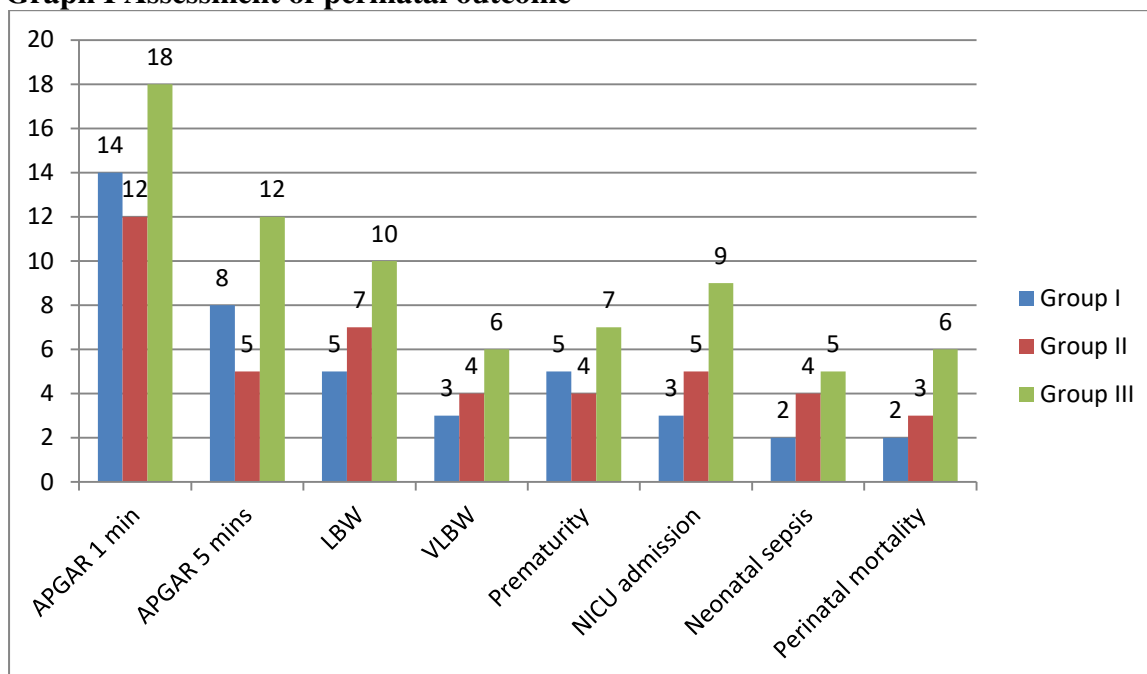
Discussion

Pre-eclampsia is considered an idiopathic multisystem disorder.[7]The prevention of pre-eclampsia is necessary to prevent the complications, so it must be diagnose the disease at the earliest.[8] The effects of LDH in pregnancy related complications like preeclampsia is now gaining attention.[9] The effects of LDH in pregnancy related complications like preeclampsia is now gaining attention. LDH is an intracellular enzyme and its level is increased in these women due to cellular death.[10] Though cellular enzymes in the extracellular space have no metabolic function, they are still of benefit because they serve as indicators suggestive of disturbance of cellular integrity induced by pathological conditions and is used to detect cell damage or cell death.[11] The present study was conducted to assess outcomes in preeclampsia and eclampsia in correlation with LDH.

We found that 24% patients in group I, 10% in group II had SBP of <140 mm Hg. 50% in group I, 38% in group II and 35% in group III had SBP of 140- 160 mm Hg and 26% in

group I, 52% in group II and 65% in group III had SBP of >160 mm Hg. Qublanet al[12] included 200 pre-eclamptic women (121 with mild and 79 with severe pre-eclampsia) and 200 healthy normotensive controls. The symptoms and complications of severe pre-eclampsia along with fetal outcome were analyzed according to the levels of LDH. Severely pre-eclamptic patients were significantly younger, with low gravidity and parity. On the other hand, they had significantly increased systolic and diastolic pressure and liver enzymes, uric acid, urine albumin, and LDH levels. The symptoms and complications of pre-eclampsia along with perinatal mortality were increased significantly in patients with LDH >800 IU/l compared with those who had lower levels.

We observed that eclampsia was seen in 2 in group I, and 3 in group III, abruption in 1 in group I, 2 in group II and 3 in group III, DIC in 2 in group I, 1 in group II and 2 in group III, HELPP syndrome 1 in group I, 2 in group II and III respectively. Renal failure 2 in group I, 1 in group II, 3 in group III and 1 in group IV and mortality was seen in 1 in group I, 3 in group and 2 in group III. Gupta et al[13] included 200 women with singleton pregnancy and cephalic presentation. Out of 200, 100 were normal pregnant women and 100 were pre-eclamptic women. Serum LDH levels were measured in all women and maternal and perinatal outcome was assessed in terms of LDH levels. Higher levels of LDH was observed in pregnant women with preeclampsia (627.38±230.04 IU/l) as compared to normal pregnant women (224.43±116.61 IU/l). The maternal complications were found to be maximum in women with LDH > 800 IU/l. Abruption was the most common complication. The perinatal mortality and neonatal deaths were found to have significant correlation with high LDH levels.

We found that group I, group II, group III and group IV had APGAR at 1 min <7 was in 14, 12, 18 and   20 patients. APGAR at 5 minutes <7 was seen in 8, 5, 12 and 18. Low birth weight (LBW) was seen in 5, 7, 10 and 1, VLBW in 3, 4, 6 and 1. Prematurity in 5, 4, 7 and 1> NICU admission was seen in 3, 5, 9 and 2, neonatal sepsis in 2, 4, 5 and 1 and perinatal mortality was seen in 2, 3 and 6.Umasatyasriet al[14] observed increase in maternal morbidity with increasing serum LDH levels. They observed higher serum LDH levels were associated with increased incidence of maternal complications like abruption, renal failure, HELLP syndrome.

Conclusion

Authors found thatmaternal and perinatal complications were associated with higher LDH levels in preeclampsia patients. Serum LDH levels may be performed in all patients of preeclampsia and can be used to predict the prognosis of preeclampsia.

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