Original Article

Evaluation of HELLP syndrome in pregnancy induced hypertension- a study of 60 cases in a tertiary level hospital

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Abstract

Objective:
HELLP syndrome is a serious complication in the latter part of pregnancy. Sometimes, hypertension may accompanied with HELLP syndrome. The aim of this study is to determine the proportion of HELLP syndrome occurs in pregnancy induced hypertension.

Method: A prospective study was conducted among 60 patients by nonrandomized sampling who came after 20 weeks of gestational age with sustained rise of blood pressure 140/90mmHg irrespective of age. After admission in the Institute of Child and Mother Health(ICMH), Matuail, Dhaka, proper history & physical examination were carried out and relevant investigations were done. Appropriate and up to date management were applied to the sick mothers. Results: HELLP syndrome were demonstrated in 3(5%) patients out of sixty. Of them one(33.34%) mother died within six hour after delivery and two(66.66%) babies were born stillbirth. Conclusion: Early diagnosis and meticulous management can save the mother and her baby who suffered from HELLP syndrome.

Key words: HELLP syndrome , pregnancy induced hypertension(PIH), pre-eclampsia, eclampsia.

Introduction

HELLP syndrome was identified as a distinct clinical entity by Louis Weinstein in 1982[1]. HELLP syndrome is a life threatening obstetric complication considered by many to be variant of pre-eclampsia. Both condition occur during the latter stages of pregnancy or sometime after child birth. **HELLP** is an abbreviation of the main findings:

- Hemolytic anaemia(characteristic red cell morphology)
- Elevated Liver enzymes (aspartate aminotransferase >70u/L)
- Low Platelet count(<100x 10^9/L

HELLP syndrome occurs in approximately 0.2 to 0.6 percent of all pregnancies[2]. Of them, women with pre-eclampsia 4-12% also developed sign of a "superimposed" HELLP syndrome. Mortality is 7-35% and perinatal mortality of the child may be up to 40%[3]. It occurs in multiparous and history of poor pregnancy outcome. Hypertension is the most common medical problem encountered in pregnancy and remains an important cause of maternal and fetal morbidity and mortality. It complicates up to 8-15% of pregnancy and accounts for approximately a quarter of antenatal admission. The term "pregnancy induced hypertension"(PIH) arising de novo in pregnancy from 20 weeks gestation ranges hypertension alone(gestational hypertension) through proteinuria and multi organ dysfunction(pre-eclampsia) to seizures(eclampsia).The etiology of HELLP syndrome in pre-eclampsia is poorly understood. This syndrome is a group of clinical and pathological manifestations resulting from an insult that leads to intravascular platelet activation and microvascular endothelial damage. Later releases of thromboxane A2 and serotonin causing vasospasm, platelet agglutination and aggregation and further endothelial injury contribute to severe thrombocytopenia[4]. Heamolysis defined as the presence of microangiopathic hemolytic anaemia resulting from the passage of red cells through small blood vessels with damaged intimae and fibrin mesh deposits. This leads to the appearance on peripheral smear of triangular cells, burr cells, echinocytes and

spherocytes[5]. The classic hepatic lesion is periportal and/or focal parenchymal necrosis evidenced by elevated liver enzymes and right upper quadrant tenderness[6,7]. The clinical presentation of HELLP syndrome is initially nausea, vomiting, epigastric or right upper quadrant pain and latter on jaundice, gastrointestinal bleeding, bleeding from gums, haematuria and convulsion. Significant weight gain with edema and hypertension present almost all cases[8]. When the HELLP syndrome is diagnosed, the main priority is to assess and stabilize the women's condition especially coagulation dysfunction and subsequent management decided by the Obstetrician according to the condition of the patient whether early delivery performed or pregnancy to be continued.

Methodology

A cross sectional observational study was carried out in the department of Gynaecology and Obstetrics, Institute of Child and Mother Health, Matuail, Dhaka during the period of July to December/2007. A total of 60 patients were enrolled in this study by nonrandomized sampling after counseling and taking written consent. The inclusion criteria was pregnancy induced hypertension beyond 20 weeks of gestation up to delivery with sustained rise of blood pressure ≥140/90 mmHg irrespective of age. Patient with acute hepatitis, chronic liver disease, septicemia, congenital haemolytic anaemia and previously diagnosed platelet dysfunction were excluded from the study. After admission proper history and thorough physical examination were carried out. Routine investigations such as complete blood count, peripheral blood film, liver enzymes like alanine transaminase(ALT) and aspartate transaminase(AST), blood grouping & Rh typing, HBsAg screening, coagulation profile, random blood glucose and renal function test were done. Data was collected in a pre-structured questionnaire.

Results

Age distribution of study population shows 20-24 years age group was predominant(40%) and age ranged from 18-40 years. Of them, 59(98.3%) had leg swelling, 52(86.7%) had blurring of vision, swelling of the face in 35(58.3%), right hypochondriac pain in 55(91.7%) and decrease urine output in 24(40.0%), haematuria in 39(65%) and convulsion in 34(56.7%) patients. Gestational age ranged from 22-42 weeks and mean was 36.4±4.3 weeks. Mostly were nuliparous(80.0%). Majority(55.0%) patients had pedal oedema, puffy face 48.3%, pallor 33.4%, reddish urine was 26.7% **(Table-I)**.

Table-I: Baseline clinical characteristics.

Presenting features	Number of Patients	%
Age (years)		
Median	23.7±5.6	
Range	18-40	
Gestational age (years)		
Median	36.4±4.3	
Range	22-42	
Leg odema	59	98.3
Blurring of vision	52	86.7
Swelling of the face	35	58.3
Decrease urine output	24	40.0
Convulsion	34	56.7
Haematuria	39	65.0
Epigastric pain	34	56.7
Right hypochondriac pain	55	91.7
Vomiting	48	80.0
Pallor	20	33.3
Jaundice	04	6.7
Ascities	05	8.3
Diastolic blood pressure (mmHg)		
Mean	106.7±10.6	
Range	90-130	
Bed side albumin (4+)	16	26.7

Mean systolic blood pressure was 156.9±18.9 mmHg while mean diastolic blood pressure 106.7±10.6mmHg. The mean haemoglobin level was 10.0±9.6 gm/dl and mean platelet count was 181672±82008/mm^3. The mean bleeding time was 5.7± 1.5 minute, mean clotting time was 6.1± 1.8 minute, and mean prothrombin time was 12.0± 1.9 second. The mean serum bilirubin was 1.2±1.4mg/dl, the mean ALT was 44.1±45.1 u/L, the mean AST was 26.5±22.8 u/L. The mean serum albumin was 5.1±6.1gm/L, the mean serum creatinine was 1.3±2.4mg/dl and the mean serum uric acid was 6.0±1.1mg/dl **(Table-II)**.

Table-II: Laboratory features at presentation.

Lab investigation	Mean ±SD	Range
Haemoglobin (gm/dl)	10.0±9.6	7-16
Platelet/mm^3	181672±82008	6800-350000
Bleeding time (min)	5.7±1.5	0-10
Clotting time (min)	6.1±1.8	1-12
Prothrombin time (sec)	12.0±1.9	8-17
Serum bilirubin (mg/dl)	1.2±1.4	0-6
ALT (u/L)	44.1±45.1	10-180
AST (u/L)	26.5±22.8	3-106
Serum albumin (gm/L)	5.1±6.1	3-39
Serum creatinine (mg/dl)	1.3±2.4	0-19
Serum uric acid (mg/dl)	6.0±1.1	4-8

Three patients(5%) were recognized HELLP syndrome in pregnancy induced hypertension of them 66.67% were fetal death and maternal death was 33.34% **(Table-III& Table-IV).**

Table-III: Association of HELLP syndrome in pregnancy induced hypertension(n=60).

HELLP syndrome	Number of patients	%
Present	03	5.0
Absent	57	95

Table-IV: Feto-maternal outcome of HELLP syndrome (n=60)

Fetus	Number of patients	%
Healthy	01	33.33
Death	02	66.67
Mother		
Morbid	02	66.67
Death	01	33.33

Discussion

Weinstein[1] , Goodlin et al.[9] reported that the incidence was highest among older, white and multiparous women. Jophy et al.[10] stated the incidence of severe PIH was 5.18%. In our study, incidence of HELLP syndrome among pregnancy induced hypertension was 5%. Maximum age group of admitted patients were 20-24 years(40%) and higher the gestational age, higher the incidence(28.3%) and most were nuliparous(80%). Martin et al.[11] reported that 53% of their patients developed HELLP syndrome in a group of 117 cases of eclampsia and was more common in multipara. It has a great difference from our study (5%) and also by Sibai(4-14%)[12]. Vandam et al.[13] reported that pregnancy complicated by HELLP syndrome are associated with poor maternal and foetal outcome. The reported perinatal and maternal mortality ranged from 7.7to 60% and 2-24% respectively. Weinstein reported maternal death was 3.4%[1]. Kaur et al.[7] reported the perinatal mortality was 66.7% in HELLP syndrome and 21.33% in severe PIH cases. In this study, maternal mortality was 33.34% and morbidity was 66.66% which is comparable to the above studies.

Conclusion

Regular antenatal check up is the mainstay of prevention of HELLP syndrome. Along with improvement of clinical skills, availability of laboratory support and early installment of appropriate treatment can minimize the high maternal and fetal mortality from HELLP syndrome.

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