ADOLESCENT PREGNANCIES COMPLICATED BY HELLP SYNDROME: CLINICAL EXPERIENCE OF 26 CASES

ADOLESAN GEBELİKLERDE HELLP SENDROMU: 26 OLGULUK KLİNİK DENEYİM

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Abstract

Aim: We aimed to evaluate clinical characteristics of adolescent pregnancies complicated by HELLP syndrome.

Materials and Method: Clinical and laboratory findings of 26 patients with complete HELLP syndrome between age 17 and 20 were collected from hospital records. Data included age, gravida, parity, chronic hypertension, gestational age at diagnosis, mean arterial blood pressure, and adverse maternal outcomes as eclampsia, disseminated intravascular coagulopathy(DIC), acute renal failure, pulmonary edema, abruptio placentae, pleural effusion, ascites, transfusion and death.

Results: Mean age and standart deviation of the patients with HELLP Syndrome at diagnosis was 18,5 ±0,9. Gestational age at diagnosis was subdivided into three groups as smaller than or equal to 28, between $28^{1/7}$ and $32^{0/7}$, and $32^{1/7}$ to $37^{0/7}$ weeks and greater than 37 weeks of gestation with corresponding rates of 3,8%, 19,1%, and 54,1%, 23.0%, respectively. There was at least one maternal complication in 46,2% of the patients. No maternal death occurred during study period. The most common adverse maternal outcome was transfusion of blood products with a ratio of 26,9%. Adverse maternal outcomes were as follows; DIC: 7,7%(2 patients), abruptio placenta: 3,8%(1 patient), acute renal failure: 3,8%(1 patient), incisional hematoma: 11.5%(3 patients), ascites: 3,8%(1 patient), intrauterine/neonatal death 3,8%. (1 patient). Preterm delivery and eclampsia with HELLP syndrome occurred in 77% (20 patients), and 23,1% (6 patients), of the patients, respectively. Statistical analysis was carried out with SPSS 15 programme.

Conclusion: Preterm delivery and eclampsia had a higher incidence among the adolescents complicated by HELLP syndrome compared to the patients with HELLP syndrome of all ages.

Key words: adolescent pregnancies, HELLP syndrome, clinical experience

Özet

Amaç: HELLP sendromu ile komplike adolesan gebeliklerin klinik özelliklerinin değerlendirilmesi amaçlanmıştır.

Gereçler ve Yöntem: Çalışmaya hastane kayıtlarından elde edilen 17 ve 20 yaş arasında tam HELLP sendromlu 26 hastanın klinik ve laboratuvar verileri dahil edildi. Değerlendirmede yaş, gravida, parite, kronik hipertansiyon, tanı sırasındaki gebelik yaşı, ortalama arteriyel kan basıncı ve eklampsi gibi olumsuz maternal sonuçlar,yaygın damar içi pıhtılaşma (DIC), akut böbrek yetmezliği, pulmoner ödem , plasenta dekolmanı, plevral efüzyon, asit, transfüzyonu ve anne ölümü kriter alındı. Veriler SPSS 15 programında değerlendirildi.

Bulgular: Adolesan HELLP sendromlu olgularda ortalama yaş ve standart sapma 18,5 ± 0,9 idi. Tanı sırasındaki gebelik haftaları sırasıyla 28 hafta ve altı: %3,8; $28^{1/7}$ - $32^{0/7}$ arası: %19,1; $32^{1/7}$ - $37^{0/7}$ arası: % 54,1; 37 hafta, ve üzeri: %23 olmak üzere dört gruba ayrıldı. Hastaların %46,2'en az bir maternal komplikasyon vardı. Anne ölümü görülmedi. Çalışma döneminde oluştu. En çok görülen advers maternal sonuç %26,9 oranı ile kan ürünleri transfüzyonu olarak belirlenirken, advers maternal sonuçlar; DIC: 7,7 % (hasta), plasenta dekolmanı: % 3,8 (1 hasta), akut böbrek yetmezliği: %3,8 (1 hasta), insizyonel hematom: % 11.5 (3 hasta), asit: %3,8 (1 hasta) , intrauterin / neonatal ölüm %3,8 (1 hasta) oranında görüldü. HELLP sendromlu hastalarda erken doğum, %77 (20 hasta) ve ve eklampsi %23,1 (6 hasta) oranında ortaya çıktı.

Sonuç: Erken doğum ve eklampsi, adolesanlarda her yaştan HELLP sendromlu hastalara göre daha yüksek orandadır.

Anahtar kelimeler: adölesan gebelik , HELLP sendromu, klinik deneyim

Introduction

About 16 million women 15–19 years old give birth each year, about 11% of all births worldwide(1). Adolescent pregnancy is a worldwide health problem especially relevant in developing countries. It is associated with an increased risk of adverse maternal and fetal outcomes such as maternal and neonatal mortality, cesarean section, preterm birth and low birth weight (2). Weinstein regarded signs and symptoms to constitute an entity separated from severe preeclampsia and in 1982 named the condition HELLP (H = Haemolysis, EL = Elevated Liver enzymes, LP = Low Platelets) syndrome(3). Diagnosis of the complete form of the HELLP syndrome requires the presence of all 3 major components, while partial or incomplete HELLP syndrome consists of only 1 or 2 elements of the triad (H or EL or LP)(4).

There are conflicting reports on the incidence of hypertensive diseases of pregnancy in adolescents compared to older women. In general, however, most studies from North America report an increased incidence of hypertensive disorders in adolescent pregnancy, especially in young adolescents when compared to older women aged 30-34 years(5). Actually there is lack of data on concurrent HELLP syndrome and adolescent pregnancy in the literature.

In the current study we aimed to evaluate the clinical characteristics, pregnancy outcome and maternal complications of HELLP syndrome in the younger maternal age population.

Materials & Method

A total of 26 patients with complete HELLP syndrome younger than the age 20 (range:17-20) admitted to Perinatology unit between 2007 January and 2012 September were reviewed, retrospectively. HELLP syndrome was determined by the presence of all three of the following criteria: hemolysis (characteristic appearance of peripheral blood smear and serum lactate dehydrogenase [LDH] level ≥600 U/L or serum total bilirubin level ≥1.2 mg/dL), elevated liver enzymes (serum aspartate aminotransferase [AST] concentration≥70 U/L), and low platelet count (<100,000 cells/μL)(6). Cases with corresponding medical complications before pregnancy, such as thrombocytopenia, cirrhosis and partial HELLP syndrome were not included.

We collected data from hospital records including age, gravida, parity, chronic hypertension, gestational age at diagnosis, mean arterial blood pressure, and adverse maternal outcomes. Eclampsia, disseminated intravascular coagulopathy (DIC), acute renal failure, pulmonary edema, abruptio placentae, pleural effusion, ascites, transfusion and maternal death. DIC was determined by the presence of the following criteria: low platelet count (<100,000 cells/μL), presence of D-dimers (≥40 mg/dL), low fibrinogen concentration (<300 mg/dL), or prolonged prothrombin time (≥14 seconds) and partial thromboplastin time (≥40 seconds). Acute renal failure was diagnosed in the presence of oliguria or anuria in association with an elevated serum creatinine level of ≥2 mg/dL. Pulmonary edema and pleural effusion were diagnosed with the clinical findings and chest radiography. The diagnosis of severe ascites was made by ultrasonographic examination, or cesarean delivery. Antenatal follow up was defined as the presence of antenatal follow up at least twice.

Results

A total of 26 adolescent pregnant women with HELLP syndrome was encountered during the study period. Mean age and the standart deviation (SD) was 18,5 ±0,9. Clinical findings of the patients are detailed in Table 1. Gestational age at diagnosis was subdivided into four groups as smaller than or equal to 28, between $28^{1/7}$ and $32^{0/7}$, and $32^{1/7}$ to 37 weeks and greater than 37 weeks of gestation with corresponding rates of 3,8%, 19,1%, and 54,1%, 23.0%, respectively.

Tablo 1. Clinical findings of 26 adolescent patient with HELLP syndrome

Variable	Value
Age(mean±SD)	18,5±0,9
Nulliparous (%)	80,8
Multiparous (%)	19,2
Gestational age at diagnosis (weeks, ±SD)	35,0±3,0
Sistolic arterial pressure (mmHg, mean±SD)	160,9±15,5
Diastolic arterial pressure (mmHg, mean±SD)	99,3±10,9
Headache (%)	7,7
Upper quadrant pain (%)	19,2
Antepartum HELLP syndrome (%)	69,2
Postpartum HELLP syndrome (%)	30,8
Intensive care unit (hour, mean±SD)	42±23,9
Neonatal birth weight (gr, mean±SD)	2205±714
Cesarean delivery (%)	92,3
Antenatal follow up (%)	92,3
Delivery week<$28^{0/7}$ (%)	3,8
Delivery week>$28^{0/7}$,≤$32^{0/7}$ (%)	19,1
Delivery week>$32^{0/7}$,<$37^{0/7}$ (%)	54,1
Birth weight<1500 (%, range)	19 (890-1500)
Birth weight>1500,≤2500 (%,range)	41,8(1520-2480)
Birth weight>2500 (%,gr, range)	39,2(2600-3290)

SD: Standart Deviation

A nadir blood platelet count <50,000 cells/μL, a peak AST concentration >150 U/L, and a peak LDH concentration >1400 U/L were present in 38,5%, 46,2%, and 34,6% of the cases, respectively. Laboratory findings are depicted in Table 2.

Tablo 2. Laboratory findings of 26 adolescent pregnancies with HELLP syndrome

Variable	Value
Platelet count (1/ mm³x103 , mean±SD)	57±26,9
BUN (mg/dl , mean±SD)	29,9±9,6
Creatinin (mg/dl , mean±SD)	1,15±1,0
Aspartate amino transferase (U/L, mean±SD)	281,3±325,8
Alanine amino transferase(U/L, mean±SD)	194,3±213
Lactate dehydrogenase (U/L, mean±SD)	1322,1±574,2
Total bilirubin (mg/dl, mean±SD)	2,2±2,1

SD: Standart Deviation

The incidence of at least one maternal complication was 46,2%. No maternal death occured during study period. The most common adverse maternal outcome was transfusion of blood products with the rate of 26,9%. Adverse maternal outcomes are shown in Table 3.

Tablo 3. Adverse maternal outcomes of adeloscent pregnancies with HELLP syndrome

Variable	Value
Blood transfusion	7-26,9 %
DIC	1-7,7%
Eclampsia	6-23,1%
Abruptio placenta	1-3,8%
Acute renal failure	1-3,8%
İncisional hematoma	3-11,5%
Ascites	1-3,8%
Pulmonary edema	0-0%
Maternal death	0-0%
Intrauterine/neonatal death	1-3,8 %
IUGR	13-53,8%

DIC: Disseminated Intravascular Coagulopathy,
IUGR: Intrauterine Growth Restriction

Discussion

Adolescent pregnancies pose important obstetric problems as it occurs before full somatic development is achieved . Complications, especially preterm delivery and anemia, have widely been reported to be common among pregnant adolescents(7); however the association between HELLP syndrome and adolescent pregnancies is a subject of concern. To our knowledge, there has been no previous report regarding the association.

Different studies have reported the incidence of adolescent pregnancy, ranging from 3.2% to 42% of the general population (2, 8) and the incidence of adolescent pregnancy in Turkey has been reported to be 11% (9).

Saftlas et. al. reported that age under 20 is a risk factor for both preeclampsia and eclampsia(5). This data indicate a need for improved prenatal care among teenagers. The rate of preterm deliveries among teenagers and among the patients with HELLP syndrome have been reported as 27.7% and 70% respectively(10, 11). In the current study the rate of preterm delivery among adolescents with HELLP syndrome was 77%. This higher rate may be due to the younger maternal age and iatrogenic prematurity.

Mean neonatal birth weight was reported to be 1987.1± 856 grams in a previous study without classifying the group according to age (12). In our study mean neonatal birth weight was 2205±714 grams. About 30% of the HELLP syndromes develops after birth (13). The postpartum and the antepartum HELLP syndrome rate in our study was 30,8% and 69,2% respectively and ıt is similar with the literature.

The most common adverse outcome in the adolescent patients with HELLP syndrome was transfusion of blood products due to obstetric hemorrhage and hematoma formation as previously reported. Eclampsia is present about 4-9% of the patients with HELLP syndrome. In the adolescent group with HELLP syndrome % 23,1 of 26 patients were eclamptic. This high rate of eclampsia should be assesed in the further studies. Acute renal failure, abruptio placenta, pulmoner edema, maternal death and perinatal death had a low incidence among the adolescent patients with HELLP syndrome. This result may be due to restricted number of patients of our study . Further prospective randomized comparative studies are nededed to clarify the pregnancy outcome in adolescent pregnancies.

Conclusion

The results of the current retrospective study revealed that the rates of preterm delivery and eclampsia were 77% and 23.1% in the adolescents complicated by HELLP syndrome, respectively. Further studies are needed to investigate the association between adolescence and adverse outcomes of HELLP syndrome.

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