EFFICACY OF EXPECTANT MANAGEMENT OF EARLY-ONSET SEVERE PREECLAMPSIA IN GYNECOLOGY AND OBSTETRICS DEPARTMENT AT CENTRAL HIGHLANDS REGIONAL GENERAL HOSPITAL IN 2023

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ABSTRACT

The early-onset severe preeclampsia is a serious disease with many complications for mothers and newborns. Expectant management helps prolong gestational age to reduce morbidity and mortality due to preterm birth, while still ensuring safety by limiting complications for the mother. This was a cross-sectional descriptive study on 36 pregnant women diagnosed and treated for early-onset severe preeclampsia with gestational age from 24 to 34 weeks at the Obstetrics and Gynecology Department of Central Highlands Regional General Hospital to evaluate the effectiveness and some factors affecting the expectant management effect on this disease. Results: The expectant treatment success rate was 22.2%; The mean number of days of treatment was 7.8 (± 5.9). The group with gestational age >32 weeks had an expectant treatment success rate 1.35 times higher than the other group (p<0.05. OR=1.35 CI: 1.35 -117.5). The complications for the mother: there were no cases of death, eclampsia or placental abruption, There was 1 case of HELLP syndrome accounting for 2.8%. Neonatal outcomes: postnatal mortality accounts for 11.1%, Neonatal Intensive Care Unit admission was 21.7%, poor neonatal outcomes were mainly related to gestational age and neonatal weight.

Keywords*: Preeclampsia with severe features, Early-onset severe preeclampsia, Expectant management in the severe preeclampsia.*

1. INTRODUCTION

Preeclampsia (PE) is a quite common and extremely complex disease, usually occurring after the 20th week of pregnancy and accounting for about 5–10% of all births (Cunningham F G et al., 2018). According to statistics from the World Health Organization (WHO), this disease accounts for about 10–12% of the causes of maternal death and is also the leading cause of Fetal Growth Restriction (FGR) or Intrauterine Fetal Demise if not detected and treated early. Therefore, PE is considered a global problem by the WHO. The rate of PE with severe features and Eclampsia accounts for about 4–5% of the total number of pregnant women and is still a disease of special concern (WHO, 2011).

Early-onset severe PE (before 34 weeks of gestation) accounts for about 30% of the total cases diagnosed with PE with severe features (Cnossen et al., 2008). This is a worrying disease because, in addition to the general complications that PE causes for the mother and fetus, the early-onset severe PE also increases bad outcomes for the fetus, because it is associated with early termination of pregnancy when the fetus is still premature expectant management of pregnancies with early-onset severe PE has been mentioned in many clinical guidelines of domestic and foreign obstetric associations. The principles of this method are to control blood pressure (BP), prevent seizures, antenatal Corticosteroid therapy and monitor the health of the fetus and mother with the hope of extending the gestational age to the expected time of 34 weeks. With quite strict standards in selecting subjects as well as monitoring procedures to minimize dangerous complications and terminate pregnancy at the right time, expectant management is effective in prolonging gestational age to reduce morbidity and mortality caused by premature birth. Most current studies in the world believe that if BP is well controlled and closely monitored to detect complications and terminate pregnancy promptly, the benefits to the fetus far outweigh the risks for mothers. However, the influencing factors and effectiveness of this method in the Central Highlands Regional General Hospital and hospitals in Vietnam are reported quite rarely. Therefore, it is difficult for clinicians to provide evidence in advising patients on choosing this method, and at the same time, they do not have much experience in predicting and treating complications that occur during monitoring. That is which leads to a reduced rate of treated cases and a reduced chance of fetal survival in mothers with the condition.

For the above reasons, we conducted this study

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with the goal of "Evaluating the effectiveness and some factors affecting the effectiveness of expectant management methods in patients with early-onset severe PE at the Obstetrics and Gynecology Department of Central Highlands Regional General Hospital ".

2. SUBJECTS AND METHODS

2.1. Research subjects

The pregnant woman was diagnosed and treated for early-onset severe PE with a gestational age of 24 to 34 weeks at the Obstetrics and Gynecology Department of Central Highlands Regional General Hospital from February 1, 2023 to August 31, 2023, was diagnosed with PE with severe features according to ACOG 2013 criteria and agreed on expectant management.

Exclusion criteria: There was areason for termination of pregnancy that was not due to PE; pregnant women had seizures or coma due to other causes; pregnant women did not agree to participate in the study.

2.2. Research methods

Case series study with follow-up

2.3. Implementation steps

Pregnant women with PE with severe features, who meet the disease selection criteria, were consulted and included in the study. The steps are as follows:

Step 1: Interviewing to collect data on general characteristics such as occupation, maternal age, gestational age, number of pregnancies, medical and surgical history, history of PE in pregnancy previous period, screening and prevention of PE during this pregnancy.

Step 2: Examining the patient upon admission to the hospital to record clinical symptoms and valuable paraclinical results for research.

Step 3: Proceeding with the expectant management. We mainly follow the expected treatment regimen mentioned in the Tu Du hospital treatment regimen with the following contents (Le Quang Thanh, 2022):

Controling BP with calcium channel blockers and methyldopa antihypertensive drugs.

Preventing seizures with magnesium sulfate. In this study, magnesium sulfate was administered within 48 hours after admission, during labor, and after 24 hours after birth.

Monitor fetal health: non-stress test daily or every 3 days, depending on condition; Ultrasound checks the size of the fetus, fetal doppler, and amniotic fluid every week or twice a week, depending on the condition.

Monitor maternal complications: clinical assessment to monitor blood pressure, eye condition, urine, and tendon reflexes every 4 hours or twice a day; test the blood count, liver enzymes, kidney function, and blood albumin every 3–4 days or weekly if the condition is stable.

Monitor patients daily to collect information about the expected effectiveness of treatment, such as the expectant management time, complications encountered, time of termination of pregnancy, method of termination of pregnancy, and maternal and fetal outcome.

Step 4: Evaluating expectant management effectiveness:

Expectant management was successful when pregnancies were monitored and managed without complications that required termination of pregnancy before the expected time (34 weeks of gestation) (ACOG, 2018)

The study ended when the patient was discharged from the hospital.

2.4. Data processing

Collected data was entered, processed, and analyzed according to medical statistical methods using the SPSS 20.0.

3. RESULTS AND DISCUSSION

During the research period, there were 36 pregnant women with early-onset severe PE who were treated with the expectant management method and monitored until the end of pregnancy at the Obstetrics and Gynecology Department, Central Highlands Regional General Hospital.

The average gestational age at admission was 30.9 (± 1.795); the gestational age group was mainly detected ≥28 weeks gestation; the group under 28 weeks had only 2 cases, accounting for 5.6%. The average gestational age of pregnant women at termination of pregnancy was 32.06 (± 1.723), meaning that treatment was expected to prolong the pregnant woman's gestational age by about 1.16 weeks.

The average number of expectant management days was 7.8 (± 5.9), the least number of expectant management days was 2 days and the longetswas 30 days. Our average expectant management days was low compared to Yiping Le's study (a study conducted in 2010–2015 in Shanghai, China). It ispossibly due to a number of objective reasons such as gestational age. Firtstly, the average gestation age in our study was much higher than in Yiping Le's

study (about 30 weeks compared to 28 weeks) (Le et al., 2019), so the number of expectant management days might be shorter. Secondly, a common reason for high gestational age at admission was transfered to a higher level hospital because the level of care for premature newborns here was still limited.

Table 1. Expectant management results

Expectant management results		Quantity	Rate %
The number of expectant management days	≤ 2 days	2	5.6
	3 – 7 days	20	55.6
	7 – 14 days	9	25.0
	14 – 21 days	3	8.3
	≥ 21 days	2	5.6
	Total	**36**	**100.0**
Expectant management results	**Success**	8	22.2
	Failure		
	Due to maternal complications	13	36.1
	Due to fetal complications	12	33.3
	Due to placenta, umbilical cord and amniotic fluid complications	3	8.3
	Total	**36**	**100**
Methods of terminating pregnancy	Vaginal delivery	1	2.8
	Caesarean section	35	97.2
	Total	**36**	**100**

Expectant management was successful (up to 34 weeks) for 8 cases, accounting for 22.2%; this rate was consistent with Yiping Le's study (23.4%). Among the cases of early termination of pregnancy, the group of causes due to maternal complications was 13 cases, accounting for 36.1%, in which the most common cause was uncontrolled hypertension at 19.4%, irreversible liver enzyme elevation was at 11.1%, irreversible visual disturbances were 2.8%. There was only one case of HELLP sydrome and the pregnancy was terminated as soon as it was discovered at 33 weeks. Other maternal complications such as eclampsia, placental abruption, brain hemorrhage etc., were not seen during monitoring. Fetal complications were also rare, there were no cases of intrauterine fetal death, two cases of FGR were both mild with a weight below the 10th percentile and an increased dynamic impedance of the umbilical vein (Table 2). This result was also consistent with a number of other studies such as those of Yiping Le and Viswanathan , the study indicated that severe maternal complications during expectant management are often rare or did not occur and that maternal mortality rates were very low (Viswanathan M. & Daniel , 2016; Le et al., 2019). This is very meaningful because it is the basis for advising patients to trust and choose this treatment method, and it also helps doctors be more confident when consulting and monitoring.

Table 2. Expectant management complications

Complications	No		Yes	
	Quanlity	Ratio %	Quanlity	Ratio %
Maternal complications				
Placental abruption	36	100	0	0
HELLP syndrome	35	97.2	1	2.8
Eclampsia	36	100	0	0
Postpartum hemorrhage	35	97.2	1	2.8
Fetal complications				
Fetal death in uterus	36	100	0	0
FGR	34	94.4	2	5.6

The main method of terminating pregnancy was the cesarean section (97.2%), with only one case of vaginal birth accounting for 2.8%. The reason for this difference was that proactive termination of pregnancy requires a method of labor induction and the low Bishop indexand made doctors hesitant to use oxytocin as well as the rate of successful induction Labor was low. Meanwhile, other methods of labor induction were not accepted by our facility due to a number of objective issues. Furthermore, the cause of termination of pregnancy was often an emergency, so labor monitoring was an unsafe choice for both patients and medical staff, leading to priority cesarean section.

There are many factors that affect the prolongation of gestational age in patients with early-onset severe PE. Maternal complications such as stroke, HELLP syndrome, myocardial infarction, acute pulmonary edema, eclampsia, placental abruption, or manifestations of fetal distress are contraindications to expectant management. Some other severe features , such as severe hypertension, increased liver enzymes, thrombocytopenia, kidney failure, and blurred vision, were not absolute contraindications, but if these conditions became more severe and irreversible, termination of pregnancy was recommended to protect the mother's safety (Le Quang Thanh, 2022). Our study results showed that the detection of severe features at admission such as severe hypertension, blurred vision, increased liver enzymes, and thrombocytopenia does not increase the risk of expectant treatment failure compared to the group of the patient did not have these severe symptoms when hospitalized. Itshowed that the majority of these symptoms are transient and reversible. However, our study had a relatively small sample size, which might not accurately reflect the correlation between these complications and treatment outcomes.

The gestational age at which the disease is detected as one of an important factor that affects the success or failure of treatment because. As is known, The earlier the disease is detected, the longer the expected treatment time will be, leading to complications being more likely to occur. Our study showed that gestational age at detection of ≥32 weeks increased the expectant treatment success rate by 1.35 times compared to the other group (OR = 1.35, CI: 1.35–117.5). This result was also consistent with Miao Xiao's study, which found that the gestational age group under 32 weeks had a strong correlation with treatment failure and poor neonatal outcomes in patients with this pathology (Miao Xiao, 2015).

Table 3. Some factors affecting expectant management results

Factors		Expectant management results			P	OR
		Failure	Success	Total		
Gestational age at admission	< 32	18 (64.3%)	1 (12.5%)	19(52.8%)	0.01	1.35 CI: 1.35 -117.5
	≥ 32	10 (35.7%)	7 (87.5%)	17(47.2%)		
Simple severe hypertension	No	11(39.3%)	5(62.5%)	16(44.4%)	0.422	
	Yes	17(60.7%)	3(37.5%)	20(55.6%)		
Retinal complications	No	22(76.6%)	8(100%)	30(83.3%)	0.302	
	Yes	6(21.4%)	0(0%)	6(16.7%)		
Increased liver enzymes	No	23(82.1%)	7(87.5%)	30(83.3%)	1.0	
	Yes	5(17.9%)	1(12.5%)	6(16.7%)		
Thrombocytopenia	No	26(92.9%)	8(100%)	34(94.4%)	1.0	
	Yes	2(7.1%)	0(5.6%)	2(5.6%)		
FGR	No	26(92.9%)	8(100%)	34(94.4%)	1.0	
	Yes	2(7.1%)	0(5.6%)	2(5.6%)		

In the past, severe FGR (weight below the 3rd percentile) was considered a contraindication to expectant management. However, until now, cases with estimated weight below the 3rd percentile with normal non-stress test and Doppler ultrasound without signs of severe FGR can still be treated with the expectant management (ACOG, 2019). In this study, there was no statistically significant relationship between FGR and expectant management results (Table 3). This result was also completely consistent with author Yi J in a retrospective study of 72 patients treated in China from 2015 to 2018 (Yi J et al., 2022).

Table 4. Neonatal outcomes

Neonatal outcomes		Quantity	Ratio %
5-minute Apgar index	≥7	24	66.7
	4 – 7	8	22.2
	< 4	4	11.1
	Total	36	100
Birth weight (grams)	1500 – 2500	28	77.8
	1000 – 1500	7	19.4
	<1000	1	2.8
	Total	36	100
Neonatal outcomes	Strong	7	19.5
	Admission to the NICU	25	69.4
	Postpartum death	4	11.1
	Total	36	100

The average 5-minute Apgar index of newborns was 6.6 (±1.7); there were 4 cases with a very low Apgar index (<4), corresponding to 4 cases of death after delivery. The average birth weight was 1780 (±390) grams, mainly in the group with weights ranging from 1500 to 2500 grams; the group with very low weights (<1000 grams) had only one case, accounting for 2.8% (Table 4). The weight distribution of the groups was consistent with the gestational age at the time of termination of pregnancy.

In our study, there were 7 cases accounting for 19.5% of newborns who were born healthy and only needed routine care; 25 cases accounting for 69.4% had to be admitted to the neonatal intensive care unit for supportive treatment; there were 4 cases of death immediately after birth. Adverse neonatal outcomes are mainly correlated with gestational age at termination of pregnancy and birth weight (p<0.05), specifically gestational age ≤32 weeks increased the risk of adverse neonatal outcomes by 1.78 times higher than the other group (OR 1.78, CI: 1.15 - 2.73) and birth weight less than 1700 grams increased the risk of adverse neonatal outcomes by 1.5 times compared tothe group with higher birth weight (OR 1.5, CI: 1.11–2.12). The presence of severe maternal signs such as severe hypertension, increased liver enzymes, and thrombocytopenia were not associated with adverse neonatal outcomes.

Table 5. Factors associated with adverse neonatal outcomes

Element		Adverse neonatal outcome			P	OR
		Yes	No	Total		
Weight	≤1700	0 (0%)	16(55.2%)	16 (44.4%)	0.01	1.5 CI: 1.11 – 2.12
	>1700	7(100%)	13(44.8%)	20(55.6%)		
Fetal age	≤ 32 weeks	0 (0%)	20 (69%)	20 (55.6%)	0.001	1.78 CI: 1.15 - 2.73
	> 32 weeks	7(100%)	9(31%)	16(44.4%)		
Increased liver enzymes	Yes	0 (0%)	6 (20.7%)	6(16.7%)	0.317	-
	No	7(100%)	23(79.3%)	30(83.3%)		
Thrombocytopenia	Yes	0 (0%)	2 (6.9%)	2(5.6%)	1.0	-
	No	7(100%)	27(93.1%)	34 (94.4%)		
Severe hyperten-sion	Yes	0 (0%)	2 (6.9%)	2(5.6%)	0.475	-
	No	7(100%)	27(93.1%)	34 (94.4%)		
FGR	Yes	0 (0%)	2 (6.9%)	2(5.6%)	1.0	-
	No	7(100%)	27(93.1%)	34 (94.4%)		
Number of days of treatment	≤ 14 days	3 (42.9%)	16 (55.2%)	19(52.8%)	0.684	-
	≥ 14 days	4(57.1%)	13(44.8%)	17(47.2%)		

4. CONCLUSION

Expectant management with early-onset severe PE has a success rate of 22.2%, bringing good results in prolonging gestational age. Severe

complications for the mother during treatment were often rare. Gestational age ≥32 weeks was a factor that increases the success rate of expectant management.

Because benefits to the fetus and complications to the mother are rare, expectant management should be applied to all cases of early-onset severe preeclampsia when there are no contraindications.

NGHIÊN CỨU HIỆU QUẢ ĐIỀU TRỊ MONG ĐỢI TRÊN BỆNH NHÂN MẮC BỆNH LÝ TIỀN SẢN GIẬT CÓ DẤU HIỆU NẶNG KHỞI PHÁT SỚM TẠI KHOA PHỤ SẢN BỆNH VIỆN ĐA KHOA VÙNG TÂY NGUYÊN NĂM 2023

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TÓM TẮT

Bệnh lý Tiền Sản Giật có dấu hiệu nặng khởi phát sớm là một bệnh lý nghiêm trọng, có nhiều biến chứng cho mẹ và trẻ sơ sinh. Điều trị mong đợi giúp kéo dài tuổi thai để giảm bệnh suất và tử suất do sinh non, trong khi vẫn đảm bảo an toàn khi hạn chế các biến chứng cho mẹ. Đây là một nghiên cứu mô tả cắt ngang trên 36 sản phụ được chẩn đoán và điều trị Tiền Sản Giật có dấu hiệu nặng khởi phát sớm có tuổi thai từ 24 đến 34 tuần tại khoa Phụ Sản Bệnh viện Đa Khoa Vùng Tây Nguyên nhằm đánh giá hiệu quả và một số yếu tố ảnh huởng đến hiệu quả của phương pháp điều trị mong đợi trên bệnh lý này. Kết quả: tỉ lệ điều trị mong đợi thành công là 22,2%; số ngày điều trị mong đợi trung bình là 7,8 (± 5,9). Nhóm tuổi thai >32 tuần có tỉ lệ điều trị mong đợi thành công cao hơn gấp 1,35 lần so với nhóm còn lại (p<0,05. OR=1,35 CI: 1,35 -117,5). Về biến chứng cho mẹ: không có ca nào tử vong, sản giật hay nhau bong non, biến chứng HELLP ở một trường hợp chiếm 2,8%. Kết cục sơ sinh: tử vong sau sinh chiếm 11,1%, nhập khoa nhi sơ sinh 21,7%, kết cục sơ sinh xấu chủ yếu liên quan nhiều đến tuổi thai và cân nặng sơ sinh.

Từ khóa*: Tiền sản giật có dấu hiệu nặng, tiền sản giật có dấu hiệu nặng khởi phát sớm, điều trị mong đợi trong tiền sản giật có dấu hiệu nặng*

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