Comparison of Referral and Non-Referral Hypertensive Disorders during Pregnancy: an Analysis of 271 Consecutive Cases at a Tertiary Hospital

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Background: This retrospective cohort study analyzed the clinical manifestations in patients with preeclampsia and eclampsia, assessed the risk factors compared to the severity of hypertensive disorders on maternal and perinatal morbidity, and mortality between the referral and non-referral patients.

Methods: 271 pregnant women with preeclampsia and eclampsia were assessed (1993 to 1997). Chi-square analysis was used for the comparison of categorical variables, and the comparison of the two independent variables of proportions in estimation of confidence intervals and calculated odds ratio of the referral and non-referral groups. Multivariate logistic regression was used for adjusting potential confounding risk factors.

Results: Of the 271 patients included in this study, 71 (26.2%) patients were referrals from other hospitals. Most of the 62 (87.3%) referral patients were transferred during the period 21 and 37 weeks of gestation. Univariate analysis revealed that referral patients with hypertensive disorder were significantly associated with SBP ≧180, DBP ≧105, severe preclampsia, haemolysis, elevated liver enzymes, low platelets (HELLP), emergency C/S, maternal complications, and low birth weight babies, as well as poor Apgar score. Multivariate logistic regression analyses revealed that the risk factors identified to be significantly associated with increased risk of referral patients included: diastolic blood pressure above 105 mmHg (adjusted odds ratio, 2.09; 95 percent confidence interval, 1.06 to 4.13; P = 0.034), severe preeclampsia (adjusted odds ratio, 3.46; 95 percent confidence interval, 1.76 to 6.81; P < 0.001), eclampsia (adjusted odds ratio, 2.77; 95 percent confidence interval, 0.92 to 8.35; P = 0.071), HELLP syndrome (adjusted odds ratio, 18.81; 95 percent confidence interval, 2.14 to 164.99; P = 0.008).

Conclusion: The significant factors associated with the referral patients with hypertensive disorders were severe preeclampsia, HELLP, and eclampsia. Lack of prenatal care was the major avoidable factor found in referral and high risk patients. Time constraints relating to referral patients and the appropriateness of patient-centered care for patient safety and better quality of health care need further investigation on national and multi-center clinical trials.

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Key words: hypertension in pregnancy, preeclampsia and eclampsia, maternal complications, perinatal morbidity, referral and non-referral patients.

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Preeclampsia and eclampsia continue to be a significant public health problem among pregnant women in Taiwan. Preeclampsia is a leading cause of maternal mortality and morbidity, particularly in underdeveloped countries.[1] In addition, it is a major cause of preterm delivery, fetal growth restriction, and perinatal mortality.[2] Due to the severity of preeclampsia-eclampsia syndromes, many patients are referred to a tertiary hospital for further evaluation and management. An adequate referral system is a key element in a health system based on primary health care. In Taiwan, hospitals are usually classified as primary (first referral), secondary and tertiary hospitals. In general, primary hospitals are staffed by family doctors without specific specialist qualifications, secondary hospitals usually have only the four most common specialties (general medicine, general surgery, pediatrics and obstetrics) and tertiary hospitals have the remaining less common specialties.[3] A well-defined referral mechanism ensures accessibility and efficacy in the quality of health care.[4] An insufficient resource of articles dealing with the comparison of disease category in terms of severity between referral and non-referral pregnant women with hypertensive disorder exists. The purpose of this study was to determine how local medical clinics refer pregnant patients with hypertensive disorder to maternal-fetal medicine specialists whilst having clinical indications and manifestations specified as appropriate for referral or consultation by perinatal obstetricians.[5] We analyzed the severity of preeclampsia and assessed the maternal and perinatal outcomes between the referral and non-referral patients at a tertiary hospital.

METHODS

Data were collected retrospectively from pregnant women with preeclampsia and eclampsia who had been treated at Chang Gung Memorial Hospital (CGMH) from 1993 to 1997. We defined pregnant women at the Chang Gung Obstetrics and Gynecology birth center who were diagnosed with-pregnancy-induced hypertension or gestational hypertension during their pregnancy. Further definitions were given to women who had given birth or were transferred from other hospitals with hypertension during their pregnancy. Women with the exclusive criteria of missing or unavailable data. or patients transferred to other hospitals for their labor or delivery and who had no record at our Obstetrics Daily Record were excluded from the cohort study. Of 343 women enrolled in this retrospective study, 72 pregnant women who had missing data on maternal or perinatal outcomes were excluded, 3 of whom the presence of hypertension had not been verified by the team that reviewed each chart, further exclusions were 23 women of whom had stillbirths, leaving a total of 271 women. Of this population, 125 women had male infants. We defined the referral group of patients as those who were transferred from another hospital due to the severity of disease or other causes and who may not have received prenatal care; while the non-referral group of patients are those who visited our obstetric outpatient center for prenatal care from their first trimester during pregnancy. The referral group comprised of 71 mothers and 79 infants; however, the non-referral group comprised of 200 mothers and 231 infants. Two hundred and seventy one cases of preeclampsia and eclampsia were analyzed. Using the criteria of the American College of Obstetrics and Gynecology, mild to moderate preeclampsia was defined as diastolic pressure of at least 90 mmHg, and systolic pressure of at least 140 mmHg after 20 weeks' gestation, or a rise from baseline of 15 mmHg diastolic pressure or 30 mmHg systolic pressure. The elevated blood pressure reading must occur on at least two occasions at least 6 hours apart. Duration of pregnancy was determined by ultrasound examination before 20 weeks' gestation when the last menstruation period (LMP) was imprecise. Severe preeclampsia was defined as blood pressure $\geqq$ 160/110 and urine protein loss greater than 3.0 g/day. Eclampsia, a severe complication of preeclampsia, was defined as the occurrence of convulsion unrelated to coincidental neurologic disease in a woman with preeclampsia.[6] Thrombocytopenia (platelet count less than 100,000 per cubic millimeter), hemolysis (bilirubin more than 20 μmole per liter), LDH was more than 600 U/L, elevated ASAT (greater than 70 U/L), were classified as Hemolysis, Elevated Liver enzyme, and Lower Platelet, (HELLP) syndrome.[7] The time of onset of preeclampsia (the end point) was defined as the time of the first elevated blood-pressure or urinary protein measurement leading to the diagnosis of preeclampsia. A small-for-gestational-age infant was defined as an infant whose birth weight was below the 10th per-

centile according to U.S. tables of birth weight for gestational age that accounted for race, parity, and the sex of the infant.[8] The pregnant women were classified into five categories: chronic hypertension with or without preeclampsia, mild to moderate preeclampsia, severe preeclampsia, eclampsia and HELLP syndrome. We also used the new definition of "gestational hypertension" replacing the term "pregnancy-induced hypertension" to describe cases in which elevated blood pressure without proteinuria develops in a woman after 20 weeks of gestation and blood pressure levels return to normal postpartum.[9]

Statistical Analysis

Chi-square tests were used for the comparison of categorical variables, and comparison of two independent proportions in estimation of 95% confidence interval and calculated odds ratio (OR) of referral and non-referral group. The t-tests were used for the comparison of continuous variables. The significance of differences between two means was determined with the Student's t-test. Binary logistic regression analysis was performed to estimate the odds ratio (OR) along with two sided 95% Confidence Intervals (CI) for case (referral)-control (non-referral) differences. Initial univariate analyses was performed using Chi-square test. Multiple logistic regression was performed as many of the predictors were obviously interrelated. Factors having significant ($P< 0.05$) univariate associations with referral versus non-referral status were considered for inclusion in the multiple regression model in which a backward elimination procedure to adjust potential confounders was used. Statistical procedures were carried out with SPSS 11.0 Statistical Package Software. Data are presented as Means ± SD (Standard Deviation). A *p* value of less than 0.05 was considered statistically significant.

RESULTS

Two hundred and seventy-one cases which met the inclusion criteria of hypertensive disorders during pregnancy and treated at CGMH were analyzed. Of 241women with preeclampsia, 112 had mild to moderate preeclampsia and 125 had severe preeclampsia, including 17 with HELLP syndrome and 17 with eclampsia. There were 12 cases of chronic hypertension. The range of age was from 17 to 48 years, of the mean age was 31.3 years. Of the total cohort study, 101 (37.3%) were nulliparous. The major portion 125 (46.1%) of the cohort were categorized severe preeclampsia. Table 1 summarizes key variables at a baseline for the entire population during the study period. Table 2 displays the distribution of ante-, intra-, and postpartum risk factors according to types of referral patterns after the time of diagnosis. The incidence rate of gestational hypertension was about 0.8% to 1.5%. The majority of patients with gestational hypertension were first diagnosed between 32 and 36 weeks of gestation. The mean (SD) gestational weeks of delivery was 33.5 (±4.5) weeks. Maternal complications were abruption of placenta (5/271) (1.85%), pulmonary edema (5/271) (1.85%), acute renal failure (1/271) (0.04%), retinal detachment (3/271) (0.11%), peri-

Table 1. Characteristics of Referred and Non-Referred Patients with Preeclampsia

	Referred patients (N = 71)	Non-referred patients (N = 200)	*p*
Maternal age (year)	29.18 ± 5.84	30.52 ± 4.88	0.064
Primigravida-no. (%)	26 (36.6)	75 (37.5)	0.673
Systolic blood pressure-mmHg	169.5 ± 20.7	159.3 ± 19.4	0.001
Diastolic blood pressure-mmHg	103.3 ± 15.9	95.6 ± 16.6	0.004
Gestational age at enrollment-wk (Time of initial hypertension detection)	2.9 ± 4.7	30.1 ± 7.9	0.814
Gestational age at delivery-wk	34.4 ± 3.3	34.6 ± 4.5	0.143
Twin or multiple pregnancies- no.(%)	3 (4.23)	13 (6.50)	0.569
Infant's birth weight- g	2059.5 ± 801.8	2172.9 ± 875.8	0.361
Delivery at < 37 wk- no. (%)	55 (77.5)	123 (61.5)	0.085
Small-for-gestational-age infants (< 10th percentile)- no. (%)			

Data presented are mean ± SD

Table 2. Selected Comparisons of Preeclampsia Patients Who Did Not Receive Antepartum Care with Those Who Did

Comparison	No care (Referral) (N = 71 mothers, 79 infants)	Care (Non-referral) (N = 200 mothers, 231 infants)	*p*
Risk score: high antepartum (≧10)			
Antepartum risk factors			
Nulliparity	26 (36.6)*	75 (37.5)	$p = 0.673^{\dagger}$
SBP ≧180 mmHg	26 (36.6)	24 (12.0)	$p < 0.001$
DBP ≧105 mmHg	33 (46.5)	37 (18.5	$p < 0.001$
Intrapartum risk factors			
Preterm Labor	55 (77.5	123 (61.5)	$p = 0.085$
Intrauterine Fetal Restriction	33 (46.5)	88 (44.0)	$p = 1.000$
Primary Cesarean Section	33 (46.5)	96 (48.0)	$p = 0.585$
Multiple Pregnancy	3 (4.23)	13 (6.50)	$p = 0.569$
Postpartum risk factors			
Maternal Complications‡	26 (36.6)	27 (13.5)	$p < 0.001$
Infants			
21-31 weeks' gestation	18 (25.4)	27 (13.5)	$p = 0.046$
38-42 weeks' gestation	11 (15.5)	41 (20.5)	$p = 0.301$
500-999 g	8 (11.3)	12 (6.00)	$p = 0.194$
1000-1999 g	33 (46.5)	54 (27.0)	$p = 0.008$
< 2,500 g	55 (69.6)	120 (51.9)	$p = 0.046$
Apgar low (< 7) at 1 minute	32 (45.1)	47 (23.5)	$p = 0.003$
Apgar low (≦ 5) at 5 minutes	11 (15.5)	19 (9.50)	$p = 0.276$
Perinatal Mortality			
Antepartum stillbirth	4 (5.63)	15 (7.50)	$p = 0.606$
Intrapartum stillbirth	0	2 (1.00)	$p = 1.00$
Total stillbirth	4 (5.63	17 (7.36)	$p = 0.604$
Neonatal death	3 (4.23)	14 (7.00)	$p = 0.574$
Perinatal mortality	5 (7.04)	17 (7.36)	$p = 0.804$

Abbreviations: SBP: systolic blood pressure; DBP: diastolic blood pressure;

* indicates the percentage of total patients

† by Chi-square test or Fisher's exact test.

‡ patients associated with complicated diseases through their pregnancies.

cardial effusion (1/271) (0.04%), adult respiratory distress syndrome (ARDS) (1/271) (0.04%), HELLP syndrome (5/271) (1.85%), sepsis (2/271) (0.74%), and intracranial hemorrhage (2/271) (0.74%). One patient was complicated with sepsis, ARDS, and intracranial hemorrhage. Associated syndromes with gestational hypertension were gestational diabetes mellitus (GDM) (4/271) (1.48%), systemic lupus erythematosus (SLE) (3/271) (1.11%), uremia (3/271) (1.11%), retinopathy (3/271) (1.11%), uterine myoma (2/271) (0.74%), hyperthyroidism (1/271) (0.37%), placenta accrete (1/271) (0.37%), Thrombocytopenia (4/271) (1.44%), glomerulonephritis (1/271) (0.37%). In terms of pregnancy outcomes in a total of 310 baby deliveries, 289 were live births, including ten twins and one triplet. There were 121 cases of intrauterine growth restriction (IUGR), 22 neonatal deaths and intrauterine demise. The perinatal mortality rate measured 71 per 1,000 births; maternal mortality rate was about 6.87 death per 100,000 live births (2 cases in 29,095 deliveries).

Referral vs Non-referral

Of the 271 cases, 71 cases were referred from other hospitals or local medical clinics, the referral rate was 26.2%. Among the 125 patients with severe preeclampsia, 54 were referred from other hospitals, a 43.2% referral rate. We found that factors associated with the development of severe preeclampsia, included: parity≧3, SBP＞180, DBP＞100, abrup-

tion of placenta, and concurrently complicated diseases. As the characteristics of comparison between referral and non-referral group, we noted that severe preeclampsia, HELLP, eclampsia, and emergency C/S became the major component of ante- and intrapartum risk factors of referral patients (Table 3). Low birth weight and poor neonatal outcome were the significant features of referral group (Table 3). The risk factors that were considered to influence the prevalence rate of severe preeclampsia were divided into the following three groups: factors related to the antepartum assessment; factors related to the maternal complications during pregnancy; and factors related to the fetal conditions and pregnancy outcome.[10] Most of the 62 (87.3%) referral patients were transferred during the period of 21 and 37 weeks of gestation. Univariate analysis revealed that referral patients with hypertensive disorder were significantly associated with SBP ≧180, DBP ≧105, severe preclampsia, HELLP, emergency C/S, maternal complications, and low birth weight babies, as well as a poor Apgar score (Table 4). As for fetal prognostic indicators: a low Apgar score less than 7 at I minute showed a statistical significance between the referral and non-referral patients. No significant difference between referral and non-referral subjects were observed relative to the risk factors such as time of delivery above 30 weeks, or advanced maternal age higher than 35 years.

Table 5 shows the results of multivariate logistic regression analyses. Risk factors that were identified to be significantly associated with increased risk of referral patients included: diastolic blood pressure above 105 mmHg (adjusted odds ratio, 2.09; 95 percent confidence interval, 1.06 to 4.13; $p = 0.034$), severe preeclampsia (adjusted odds ratio, 3.46; 95 percent confidence interval, 1.76 to 6.81; $p < 0.001$), eclampsia (adjusted odds ratio, 2.77; 95 percent confidence interval, 0.92 to 8.35; $p = 0.071$), HELLP syndrome (adjusted odds ratio, 18.81; 95 percent confidence interval, 2.14 to 164.99; $p = 0.008$). Therefore, we observed that the severity of

Table 3. Risk Factors in Comparisons of Referred and Non-Referred Patients

Comparison	Referred (%) (N = 71 mothers, 79 infants)	Non-referred (%) (N = 200 mothers, 231 infants)	*p*
Antepartum risk factors			
Age ≧35	17 (23.9)*	40 (20.0)	$p = 0.738$
Gestational hypertension	13 (18.3)	89 (44.5)	$p < 0.001$
Severe preeclampsia	54 (76.1)	71 (35.5)	$p < 0.001$
HELLP	9 (11.3)	8 (0.5)	$p < 0.001$
Eclampsia	9 (12.7)	8 (4.0)	$p = 0.022$
Pregnancy associated syndromes	12 (16.9)	18 (9.0)	$p = 0.127$
Previous gestational hypertension	12 (16.9)	87 (43.5)	$p < 0.001$
Previous stillbirth	1 (1.41)	5 (2.5)	$p = 1.00$
Intrapartum risk factors			
Abruptio placentae	4 (5.63)	3 (1.5)	$p = 0.091$
Placenta Accreta	1 (1.41)	0	$p = 0.273$
Emergency C/S	14 (19.7)	11 (5.5)	$p = 0.002$
Pregnancy duration (weeks' gestation)			
21-37 week	62 (78.5)	145 (62.8)	$p = 0.108$
38-42 week	11 (15.5)	39 (19.5)	$p = 0.384$
Infant weight (g)			
500-2499	†55 (77.5)	‡110 (55.0)	$p = 0.005$
2500-4000	17 (23.9)	71 (35.5)	$p = 0.043$
* 4000	1 (1.41)	1 (1.41)	$p = 0.472$

Abbreviations: HELLP: hemolysis, elevated liver enzymes, low platelets; C/S: Cesarean section; IUFD: intrauterine fetal demise.

* indicates the percentage of total patients

† includes three twin babies, two IUFD, one missing value

‡ includes 19 twin babies, 8 IUFD, one triplet babies parentheses ( ) indicates the percentage of patients

Table 4. Univariate Analysis of Referral versus Non-referral Patients with Preeclampsia

Study variables	Odds Ratio	95% Confidence Interval	*p**
SBP ≧ 180 mmHg	3.72	1.94 - 7.14	$p < 0.001$
DBP ≧ 105 mmHg	3.50	1.95 - 6.28	$p < 0.001$
Severe preeclampsia	4.16	2.31 - 7.48	$p < 0.001$
HELLP syndrome	11.88	1.30 - 108.17	$p = 0.028$
Eclampsia	3.27	1.12 - 8.83	$p = 0.019$
Emergency C/S	3.94	1.70 - 9.15	$p = 0.002$
Maternal complications	3.41	1.82 - 6.38	$p < 0.001$
Low Birth Weight (<2500gm)	1.86	1.03 - 3.37	$p = 0.041$
Apgar Score 1' < 7'	2.436	1.38 - 4.27	$p = 0.001$
Date of Delivery ≧30 wks†	1.743	0.687 - 4.42	$p = 0.242$
Age ≧35	1.163	0.61 - 2.21	$p = 0.645$

* by logistic regression
† gestational weeks

Table 5. Multivariate Logistic Regression Analysis of Referral versus Non-referral for Significant Risk Factors

Study Factors	Adjusted Odds Ratio	95% CI	*p*
DBP ≧ 105	2.09	1.06 - 4.13	$p = 0.034$
Severe Preeclampsia	3.46	1.76 - 6.81	$p < 0.001$
Eclampsia	2.77	0.92 - 8.35	$p = 0.071$
HELLP	18.81	2.14 - 164.99	$p = 0.008$

Abbreviations: DBP: diastolic blood pressure; CI: confidence interval; HELLP: hemolysis, elevated liver enzymes, low platelet.

preeclampsia in referral patients was significantly more severe than in the non-referral patient group of our study.

DISCUSSION

Preeclampsia is principally a disease nulliparous women. In our series, 57.9% of patients were nulliparous as compared to that of Chesley (75%).[11] Numerous maternal factors can predispose the pregnant woman to the disorder; there may be genetic, behavioral, or environmental factors. Conditions such as hypertension or diabetes may also be predisposing factors. The analysis of predisposing factors between referral and non-referral patients was performed at this tertiary hospital. Comparison of referred and non-referred patients in terms of disease severity revealed statistically significant findings. Due to the lack of prenatal care when referred patients were transferred to this hospital, the major predictive factors were an emergency C/S rate, severe preeclampsia, eclampsia and HELLP cases, and low birth weight infants which may have contributed as a major reason. Hypertension episodes could not sufficiently controlled among all non-referred cases due to patient-hospital preference or self-referral which may reflect the higher proportion of HELLP referral cases. The primary C/S rate between referred and non-referred patients had similar proportional values. It demonstrates that Cesarean section may become the only way to manage severe preeclampsia through the delivery of a baby whether the patients holds a referral or non-referral status.

Obstetric risk scoring is a formalized way of recognizing, documenting, and cumulating antepartum and intrapartum factors to predict later complications for mother and fetus.[12] For instances, the risk score of severe preeclampsia is 10, primary C/S is 5, prematurity less than 2500 grams is 10 and so forth. A total score of 10 was chosen as an arbitrary division to separate patients into a low-risk (≦9) or a high-risk (≧10) category.[13] Our findings revealed that items which categorized high-risk scoring were statistically significant between the referral and non-referral groups. From a quantitative perspective, pregnancy associated complications and severity of preeclampsia-eclampsia syndrome could be elucidated from referral patients. A large proportion (76.4%) of preterm labor was terminated and delivery ensued during 21 to 37 weeks of gestation. Moreover, 77.5% (55/71) proportion of referral patients delivered low birth weight babies, 500 grams to 2499 grams, which indirectly reflects the severity of preeclampsia and poor hypertension control. We also noted that 61.5% (123/200) of non-referral patients did not carry their birth to term and half (51.9%) of the non-referral patients had delivered low birth weight babies. The highly significant corrrelation between referral and non-referral patients who carried low birth weight babies (odds ratio, 1.86; 95 percent confidence interval, 1.03 to 3.37; $p = 0.04$) indicates the severity of the disease, comorbidity and complications of preclampsia at this hospital.

Timely recognition of preeclampsia appears to play a key role in the prevention of eclampsia. Frequent antenatal visits result in prompt identification of preeclampsia and effective management of the disease through bed rest and initiation of thera-

py.[14] In uncomplicated pregnancies, the recommended number of visits for optimal prenatal care is 12.[15] In Taiwan, Universal Health Insurance System recommends an optimal time of ten prenatal visits. Prenatal care has been said to reduce the incidence of low birth rate and infant mortality, yet the incidence was still high among the high risk population.[16] Perinatal mortality between referral and non-referral patients in our study found no statistical significance. This might indicate that non-referral patients had other complications resulting in fetal demise. Lack of prenatal care was the major avoidable factor found in our referral and high risk patients. This finding has also been documented in several reports from both developing and developed countries.[17,18] Our series revealed that a fairly higher proportion of severe preeclampsia patients were referred from other hospitals or local medical clinics. In some cases the severity of the gestational hypertensive disorders were not recognized. The possible explanations for our data underscores the importance of prenatal care and risk assessment during pregnancy. The time constraints relevant for referring patients to a medical center and the appropriateness of patient-centered care for patient safety and better quality of health care needs further investigation. Improvements in hygiene, socioeconomic factors, prenatal care, and medical care appear to play an important role in the prevention of severe preeclampsia and/or eclampsia and, thus, focusing on improving these factors helps reduce preeclampsia rates.[19,20,21] Morbidity tended to occur in patients with severe preeclampsia and patients prone to severe complications. For example one case of moderate preeclampsia, ended in death as a result of ruptured aortic aneurysm. Preeclampsia therefore remains a major challenge for obstetrics in Taiwan.

Early diagnosis and management to prevent the progression of preeclampsia would significantly ameliorate outcomes for both mothers and fetuses. Despite referral and non-referral patient status, clinical guidelines and evidence-based medicine would facilitate the effectiveness and efficacy of health care quality.

Criticism against this study would be that it was limited and biased because it was hospital-based only. The analysis was also limited by the lack of data on important variables such as detailed maternal and family history, the lack of standard guidelines and treatment strategies of preeclampsia among physicians. The descriptive nature of case analysis and no control group or randomization, nor any prospective trial design highlights further criticism toward this study.

The potential benefit of this study is that the validity of chart contents accurately reflect the reality of clinical practice at a tertiary hospital in Taiwan. It also enables a clinician to identify a prospective group of primigravida women, whether referral or non-referral patients, at particular risk of developing preeclampsia-eclampsia and other recognizable complications. Our analyses identified several risk factors that were significantly associated with increased risk of referral pregnant women with hypertensive disorders. The results have implications for clinical practice and are helpful for devising health policy regarding hypertension prevention strategies in Taiwan. We also recommend the use of standard protocol and the availability of appropriate intensive care facilities for the treatment of preeclampsia. Physicians referring patients should consult with physicians at a peripheral center before transportation, the patient's blood pressure should be stabilized and convulsion controlled before transportation. Additionally, case reviews and epidemiology studies of preeclampsia-eclampsia should be undertaken to address this issue directly so that public health recommendations can be made.

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妊娠高血壓–醫學中心271之轉診與非轉診病例的回溯性分析

劉競明 張舜智 鄭博仁

背 景： 探討妊娠高血壓子癲前症等之臨床表徵及產婦併發症罹病率與周產期罹病率及併發症並分析其危險因子發生的可能原因。以及比較在本院的轉診與非轉診子癲前症病患的疾病嚴重度及勝算比。

方 法： 271位妊娠高血壓產婦於1993年1月至1997年12月於林口醫學中心生產者，運用回溯性研究族群研究法，以卡方檢定方法分析欄位項變數，並比較轉診與非轉診病患的兩獨立分率變數，推估其95%信賴區間、計算其勝算比。同時再用單一變異數及多重變異數之邏輯斯分析，去除潛在的干擾因子。

結 果： 在271個病例中，112例爲輕中度子癲前症，125例爲重度子癲前症，17例爲血小板低下併生肝酵素昇高的症候群，17例爲子癲症。在271病例中 71 (26.2%) 例係從他院轉診而來。大部份的轉診病患 62 (87.3%) 係在妊娠21至37週期間轉來，單變數分析有意義的項目爲：心舒壓大於105毫米汞柱、子癲前症、子癲症、母親併發症、低體重兒等。多變數邏輯斯分析確定：心舒壓大於105毫米汞柱 (調整後勝算比：2.09，95% 信賴區間：1.06 到 4.13，p = 0.034)；“嚴重性”子癲前症 (調整後勝算比：3.46，95% 信賴區間：1.76 到 6.81，p < 0.001)；子癲症 (調整後勝算比：2.77，95% 信賴區間：0.92 到 8.35，p = 0.071)；血小板低下併生肝酵素昇高的症候群 (HELLP) (調整後勝算比：18.8，95% 信賴區間：2.14到 164.9，p = 0.008)。吾人發現轉診病人較非轉診病患有較高之疾病嚴重度。

討 論： 經調整後與轉診病患有意義的因素爲：嚴重子癲前症、子癲症、血小板低下併生肝酵素昇高的症候群、心舒壓大於105毫米汞柱。對於轉診的高危險孕婦族群常未接受適當的產前檢查。正確的轉診時機，基於病患安全以及以病人爲中心的醫療照護，達成更好的醫療照顧品質需要進一步全國性及多中心的臨床試驗與研究。

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關鍵字： 妊娠高血壓，子癲前症與子癲症，母體併發症，胎兒罹病率，妊娠結果。

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