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Early pre-eclampsia: What proportion of women qualify for expectant management and if not, why not?

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Abstract

Objective: To determine what proportion of women with early pre-eclampsia qualify for expectant management and the magnitude of factors excluding this approach.
Study design: A prospective case series with continuous data capture over one year at a tertiary referral centre. All women ($n = 169$) with singleton pregnancies, presenting with early ($\geq$20 and $<$34 weeks' gestation) pre-eclampsia, were admitted, stabilised and evaluated. Major maternal or fetal complications at this stage were indications for delivery. However, when the pregnancy was otherwise stable, expectant management was commenced if the gestation was $\geq$24 weeks. Termination was offered from 20 to 23 weeks' gestation.
Results: Of the 169 women admitted, 82 (48.5%) were managed expectantly and 87 (51.5%) delivered after stabilisation and evaluation. Early fetal distress (32%) and major maternal complications (28%) were the most frequent reasons preventing expectant management. Ascites (18%) and HELLP syndrome (13%) ranked highest amongst the maternal complications.
Conclusions: In this study, almost half of the women presenting with early onset pre-eclampsia qualified for expectant management. Early fetal distress was the most frequent reason preventing expectant management.
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Keywords: Expectant management; Pre-eclampsia

1. Introduction

Hypertensive diseases of pregnancy are certainly important. The maternal mortality associated with these conditions remains high in the developed [1] and developing [2] world. When death does result from hypertension in pregnancy, cerebral haemorrhage is the most common final cause thereof and hypertension is still the most powerful predictor of a stroke [3]. In the Western Cape Province of South Africa, hypertensive diseases of pregnancy remain important causes for delivery of very low-birth weight babies [4] and perinatally related wastage [5].

Expectant management of selected patients with early onset, severe pre-eclampsia has been shown to be safe for the mother and beneficial for the fetus [6,7]. Research on this subject has included: which antihypertensive agents to use [8,9], the need for anticonvulsants [10,11], plasma volume expansion [12] and the appropriate gestation at which to begin expectant management [13]. However, one important question that has not been addressed prospectively in the literature yet is: what proportion of women with early pre-eclampsia qualify for expectant management and if not, why not? This study was performed to answer that question.

2. Materials and methods

The population served by the study hospital is comprised chiefly of persons of mixed racial origin from a low socio-economic background. Over a period of one year (01/05/2000–30/04/2001) all women with singleton pregnancies, presenting at or referred to our tertiary hospital with early

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onset (≥20 and <34 completed weeks' gestation), pre-eclampsia were studied prospectively. Continuous data capture was performed by two investigators (DH and EC) to follow the course and outcome of every identified pregnancy.

All patients with early pre-eclampsia were admitted, stabilised and evaluated. This process did not have a fixed time-span but usually lasted 24–48 h. The presence of major maternal or fetal complications was indication for delivery of viable babies or termination of pre-viable pregnancies. However, where both the mother and the fetus were otherwise stable, expectant management was commenced if the gestation was ≥24 weeks. These patients were referred to the Obstetric Special Care Unit. This unit consists of a team of consultants and a registrar who manage a high-care ward where intensive, non-invasive monitoring of the maternal and fetal status is performed. This approach has been carefully documented previously [6,7]. Stable cases not admitted to the Obstetric Special Care Unit were managed in a general antenatal ward. Termination of pregnancy was offered for pregnancies from 20 to 23 weeks' gestation. For women undergoing expectant management, failure to control blood pressure or the development of major maternal or fetal complications were indications for delivery. Women with severe pre-eclampsia reaching a gestation of 34 weeks without complications were delivered electively. Those with mild/moderate pre-eclampsia were delivered at 36–37 weeks' gestation.

The definitions of hypertension and proteinuria used were those put forward by Davey and MacGillivray [14] and accepted by the International Society for the Study of Hypertension in Pregnancy (ISSHP). Mild/moderate hypertension was defined as a diastolic blood pressure measurement of ≥110 mmHg on one occasion or ≥90 mmHg on two occasions, 4 h or more apart. Severe hypertension was defined as a diastolic blood pressure measurement of ≥120 mmHg on one occasion or ≥110 mmHg on two occasions, 4 h or more apart. The highest levels during the 24-h period after admission and before delivery were noted. Significant proteinuria was defined as ≥300 mg of total protein in a 24-h urine collection or persistent values ≥1+ on ''dipstick'' when a 24-h urine collection could not be performed.

During stabilisation and thereafter in the Obstetric Special Care Unit, maternal monitoring included 4-hourly blood pressure measurement, clinical evaluation at least twice daily and daily urine tests for protein and glucose. A full blood count, renal function tests, liver function tests and 24-h urine collection for creatinine clearance and protein quantification were all performed twice weekly. When major maternal complications were present or developed, viable fetuses were delivered and pre-viable pregnancies terminated. These complications included eclampsia, pulmonary oedema (clinical and radiographic diagnosis), HELLP syndrome (platelets $< 100 \times 10^9$/l, AST > 40 μl, ALT > 53 μg/l, haemolysis as demonstrated by LDH >350 μl, peripheral blood smear or haptoglobin level), placental abruption (retroplacental clot covering >15% of placental surface), ascites, severe renal impairment (serum urea value >10 mmol/l) or failure to control blood pressure with up to three antihypertensive agents. In most cases ascites was usually suspected clinically and then confirmed by ultrasound. In some cases ascites was detected primarily by ultrasound. The complications that excluded women from expectant management were essentially the same as those used to indicate delivery if they developed during the course of expectant management.

Fetal viability was set at a gestation of ≥28 weeks with a minimum estimated mass (by ultrasound) of 800 g. The fetus was monitored by 6-hourly non-stress tests (from viability), weekly Doppler velocimetry of the umbilical artery (beginning at 24 weeks) and ultrasound evaluation of growth and amniotic fluid every second week. Betamethazone (12 mg) was given intramuscularly to patients at the end of the 27th week of gestation, repeated after 24 h and given weekly thereafter until 33 weeks' gestation or delivery. This policy has since been revised to a maximum of two courses. The following fetal complications were regarded as indications for delivery: fetal distress on cardiotocograph (baseline variability <5 over 60 min, repeated late decelerations or both), absent end diastolic flow velocity (Doppler ultrasound) before 26 weeks, reversed end diastolic flow velocity and other problems such as intra-uterine death.

Main outcome measures were:

- The proportion of patients with early onset, pre-eclampsia who qualified for expectant management.
- The reasons why the remaining patients did not qualify for expectant management.

Data are expressed as and median with range or *n* (%). Differences in means were analysed using the two-tailed Student's *t*-test but for data not normally distributed the Mann–Whitney *U*-test was used. The chi square test was applied to qualitative variables with Fisher's method when the expected number was below 5. A *p*-value of less than 0.05 was regarded as significant.

The study protocol was approved by the local Ethics Committee.

3. Results

During the trial period there were 4735 births ≥500 g in the study hospital while 169 (3.6%) patients were admitted with pre-eclampsia at ≥20 and <34 weeks' gestation. Of these 82 (48.5%) were managed expectantly and 87 (51.5%) delivered after or during stabilisation and evaluation. Primigravid patients comprised 34.6% of the total group and 48 (43.6%) of the multigravid women had experienced previous hypertension, pre-eclampsia or placental abruption. Most patients (66.3%) were referred to

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