

## Preeclampsia: Prevalence and perinatal complications

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### Objective

To estimate the prevalence of preeclampsia (PE) in its early, intermediate and late onset and to verify its association with fetal death, preterm birth and intrauterine growth restriction.

### Methods

Retrospective study in which medical data from patients admitted at the maternity school of the Federal University of Rio de Janeiro, in the period from January 1, 2011 to December 31, 2012 were checked. Inclusion criteria: Childbirth in maternity hospital with gestational age at delivery greater than or equal to 22 weeks. Exclusion criteria: Unknown gestational outcome and multiple pregnancy. PE was defined as maternal blood pressure  $\geq 140/90$  mmHg on at least two occasions 4 h apart, with proteinuria  $>300\text{mg}/24\text{h}$ . All pregnant women diagnosed with preeclampsia, were classified according to gestational age at delivery into early (delivery  $< 34$  weeks gestation), intermediate (delivery  $\geq 34$  and  $< 37$  weeks ) or late ( delivery  $\geq 37$  weeks gestation) onset PE. Patients with chronic hypertension were included if they developed superimposed PE, that was defined as new onset of proteinuria  $\geq 300\text{mg}/24\text{h}$  in hypertensive women after 20 weeks. Gestational age was calculated from the last menstrual period ( LMP) confirmed by ultrasound in the first trimester. If the difference between dates was greater than seven days, the pregnancy was dated by the crown-rump length ( CRL). Prematurity was considered when gestational age at delivery was below 37 weeks. Intrauterine growth restriction (IUGR) was confirmed when birth weight was less than 10th percentile. Fetal death was its occurrence prior to complete expulsion or extraction from mother, with weight exceeding 500 g and/or gestational age greater than or equal to 22 weeks. Statistical analysis: Prevalence was calculated based on singleton pregnant women admitted to hospital delivery above 22 weeks. The association between prematurity, IUGR and fetal death was done by chi-square. Logistic regression analysis compared three forms of pe with perinatal outcome by risk relative ratio and 95% confidence interval (95%ic).

### Results

PE prevalence was 6, 74% among 4465 singleton deliveries. Distribution of PE according to gestational age at delivery was: 0, 78% early PE; 1, 19% intermediate PE and 4, 81% late PE. Preterm birth occurred in 9, 4% of singleton pregnancies and was significantly associated to PE (p - 0, 000). Birth weight was small in 3, 25% of cases ( p -0, 000) and fetal death occurred in 1, 11% (p - 0, 009). Association between early, intermediate and late PE with perinatal outcome is displayed as follow: Early PE is significant associated with prematurity (rr 4, 46; 95%ci 3, 13-6, 35; p-0, 000); low birth weight(LBW) (rr 5, 71; 95%ci 2, 17-14, 98) and fetal death (rr 20, 30; 95%ci 8, 01-51, 46; p-0, 000). Intermediate PE is significantly associated with prematurity (rr 32; ci95% 13, 16-82, 33; p-0, 000) and lbw (rr 4, 57;95%ci 1, 91-10, 92;p-0, 001). Late PE is significantly associated with LBW (rr 2, 02; 95%ci 1, 10-3, 73; p-0, 023). If multiple pregnancies were included, our prevalence would be higher: 6, 89% allocated as follow: early (0, 84%), intermediate ( 1, 19%) and late ( 4, 86%).

### Conclusion

As preeclampsia varies with racial origin of the mother, and Brazil is a wide country with diverse and mixed population, it is important to establish the real prevalence of the disease in each region. It is also important to stratify PE according to the gestational age at delivery, as it can represent a spectrum of severity of disease and its consequences.

Table 1 shows the association between early, intermediate and late PE with perinatal outcome.

Table 1: Association of PE with perinatal outcome

	PREMATURITY				LOW BIRTH WEGHT				FETAL DEATH			
	N	RR	95%CI	p	N	RR	95%CI	p	N	RR	95%CI	p
Early PE	35	4,46	3,13 - 6,35	0,000	5	5,71	2,17 - 14,98	0,000	6	20,30	8,01 - 51,46	0,000
Intermediate PE	51	32	13,16-82,33	0,000	6	4,57	1,91 - 10,92	0,001	1	1,96	0,26 - 14,54	0,509
Late PE	0	1,13	0,86 - 1,48	0,360	12	2,02	1,10 - 3,73	0,023	1	0,45	0,06 - 3,34	0,442