



**SAGA**

**PROCEEDINGS BOOK**  
**DUTCH FOUNDATION**  
FOR POSTGRADUATE MEDICAL COURSES  
IN INDONESIA 2019

**THE  
CONTINUUM  
OF CARE IN  
PRE ECLAMPSIA  
MOTHER  
INFANT  
CHILD**

UNIVERSITAS AIRLANGGA  
FACULTY OF MEDICINE  
Surabaya, April 8<sup>th</sup> - 9<sup>th</sup> 2019



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**THE CONTINUUM OF CARE  
IN PRE ECLAMPSIA MOTHER INFANT CHILD**

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# **Expectant Management of Early Onset Preeclampsia in Developing Country: Maternal and Perinatal Outcomes**

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**P**reeclampsia is a major obstetric problem throughout the world, particularly in developing countries; causing both maternal and fetal morbidities and mortalities. In a year, more than 4 million pregnant mothers suffer preeclampsia and an estimated 50,000 to 70,000 women and 500,000 infants die from preeclampsia.<sup>1</sup>

Almost ninety percent of our preeclampsia are late onset cases. Even though small portion of

cases early onset cases made big problem.<sup>2</sup> Severe preeclampsia which develops prior to 34 weeks of gestation is associated with high maternal and perinatal mortality and morbidity. Immediate delivery leads to high neonatal mortality and morbidity due to prematurity, conversely expectant management may potentially increase maternal morbidity and mortality. An accurate consideration is necessary to determine an appropriate timing, with regards of mother and fetus' conditions. Evaluation of neonatal outcomes in expectant management of preeclampsia in terms of various aspects related to onset of preeclampsia, maternal complications and termination time is therefore critical.<sup>3,4,5</sup>

During 5 years periods (2012-2017) of retrospective cohort analysis, there were 355 early onset preeclampsia patients. It was 15.51% among all PE cases. We did expectant management on 287 patients (306) fetuses. Neonatal outcomes (birth weight, APGAR score, fetal growth restriction (FGR), intrauterine fetal death (IUFD), early neonatal death, and maternal complications (HELLP syndrome, pulmonary edema, eclampsia, renal insufficiency, and placental abruption ) were registered.

The results were 46 patients had a preeclampsia disease onset < 28 weeks, 56 patients onset 28 - < 30 weeks and 63 patients onset 30-<32 weeks, 122 patients onset 32 - <34 weeks, 16 patients had twins. Mean and SD days of prolongation after

preeclampsia diagnosis was  $11.8 \text{ days} \pm 11.5$  (range 2-64). Overall neonatal survival was 67.9 %. Mean birth weight was  $1276.866 \pm 274.6$  gram, 22.22% of the neonates had a birthweight < 10<sup>th</sup> centile. IUFD ocured in 4.57 % of pregnancies, and 14.71 % of the remaining babies died during early neonatal period. There were no neonatal survivors in those with a GA of less than 26 weeks. At 26 to 27 6/7 weeks GA, 5 of 13 (38.5%) offspring survived. Regarding maternal outcome, 3.48 % of the patients developed pulmonary edema, 4.18 % HELLP syndrome, 1.39 % renal insufficiency. In this patient cohort, 1 patient developed eclampsia, whereas 2 patients died post-partum due to stroke emboli.and cardiac event.

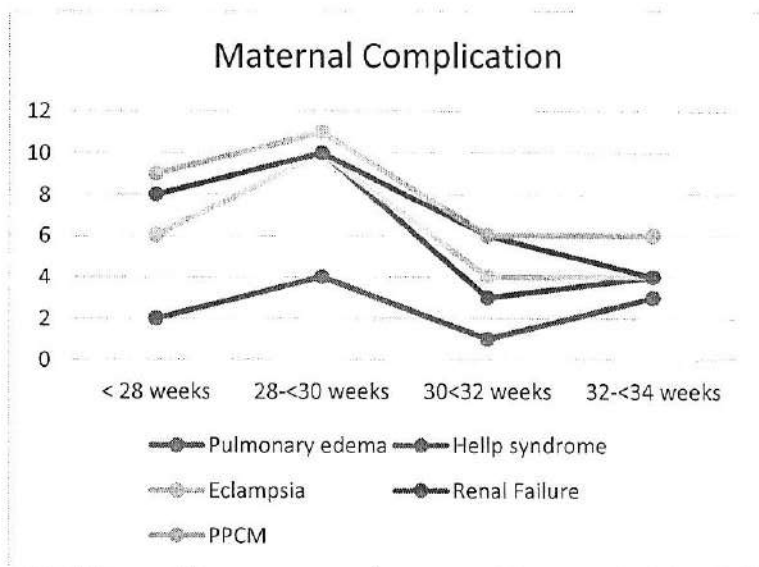
**Table 1** Characteristics of Severe Preeclampsia patients undergoing Expectant management

Characteristics	Quantity (n = 287)	Percentage (%)
<b>Parity</b>		
- Primigravida	81	28.22
- Multigravida	200	69.68
- Grande Multiparity	6	2.09
<b>Age</b>		
- ≤ 16 years old	5	1.74
- 17-34 years old	164	57.14
- ≥ 35 years old	118	41.11
<b>BMI</b>		
- < 18,5 (underweight)	2	0.68
- 18,5-24,9 (Ideal)	62	21.6
- 25-29,9 (Overweight)	102	35.54
- 30,0-34,9 (Gr. I obesity)	78	27.17
- 35,0 - 39,9 (Gr. II obesity)	18	6.27
- ≥ 40,0 (Gr. III obesity)	25	8.71
<b>Multifoetal gestation</b>	19	6.62
<b>History of severe preeclampsia</b>	44	15.33

**Table 2** Maternal Outcomes of Expectant management preeclampsia

Maternal Outcomes	$\Sigma$ (%)
<b>Mean length of expectant management (days <math>\pm</math> SD ) (Interval)</b>	<b>11.8 <math>\pm</math> 11.5 (2-64)</b>
<b>Newly developed complication</b>	
Eclampsia	1(0.35)
Pulmonary edema	10(3.48)
HELLP Syndrome	12(4.18)
Renal failure	4(1.39)
Hypertensive crisis	0
PPCM	4(1.39)
<b>ICU Care (Patient <math>\Sigma</math>)(%)</b>	<b>101(35.1)</b>
Length of stay at ICU (mean)(days)	(1,35)
Interval (shortest-longest)(days)	(1-20)
Postpartum stay at ward (mean)(days)	(4,23)
<b>Ventilator Usage (Patients <math>\Sigma</math>)(%)</b>	<b>15(5,22)</b>
Length of ventilator usage (mean)(days)	(4,2) 5
< 24 hours (Patients $\Sigma$ )	10
$\geq$ 24 hours (Patients $\Sigma$ )	
<b>Rehospitalisation due to newly developed complications</b>	<b>0</b>





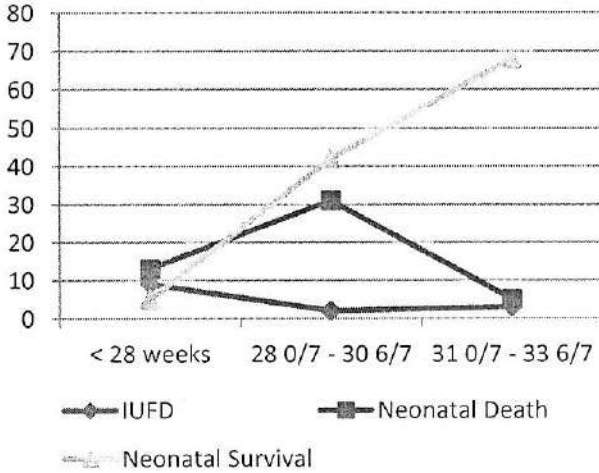
**Figure 1** Maternal Complications based on gestational age at onset of preeclampsia

**Table 3** Neonatal Outcomes of Expectant management preeclampsia

Outcomes	Infants (n=306)	%
<b>APGAR Score</b>		
- 1-3 (Severe asphyxia)	72	23.52
- 4-6 (Mild-moderate asphyxia)	55	17.97
- $\geq 7$	179	58.49
Infant weight (mean)	1276.866 $\pm$ 274.6	
IUFD	14	4.57
Early Neonatal Death	45	14.71
Late Neonatal Death	4	1.31
IUGR	68	22.22
Neonatal Survival	202	66.01

**Tabel 4 Neonatal Outcomes in Severe Preeclampsia  
Onset of < 28 weeks Gestational Age**

No	Onset	Inf an tΣ	Gest. Age during terminatio n (Mean)	Length of expectant managem ent (Days) (Interval)	I U F D	E N D	L N D	I U G R	AS 4-	AS 1-	Neonatal Survivors
1	20 - 20 6/7	1	20,57	2	0	1	0	0	0	1	0
2	21-21 6/7	4	21,75	4 (2-6)	3	1	0	0	0	1	0
3	22 - 22 6/7	3	22,85	2,7 (2-3)	1	2	0	0	0	2	0
4	23 - 23 6/7	2	24,14	6,5 (4-9)	1	1	0	0	0	1	0
5	24 - 24 6/7	4	26,07	11,5 (2- 16)	3	1	0	0	0	1	0
6	25 - 25 6/7	-	-	-	-	-	-	-	-	-	-
7	26 - 26 6/7	9	29,30	17,6 (2- 52)	0	5	0	1	2	7	4
8	27- 27 6/7	4	28,35	6,8 [3-13]	1	2	0	2	1	2	1
	<b>Total</b>	<b>27</b>	<b>24,71</b>	<b>7,3 (2- 52)</b>	<b>9</b>	<b>1</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>15</b>	<b>5</b>



**Figure 2** Neonatal outcomes based on gestational age at onset of preeclampsia

Expectant management of preterm (<34 weeks) preeclampsia allows for a prolongation of pregnancy for almost of 2 weeks ( $11.8 \pm 11.5$  days) in our tertiary center hospital. It is similar with our previous RCT on expectant management of preeclampsia, that we could prolonged the pregnancy until 14 days with good prenatal outcome. This RCT run out of 30-34 weeks of severe Preeclampsia.<sup>2</sup> It is also similar with data from another developing country.<sup>5</sup> Our global data of management of severe preeclampsia < 34 weeks of pregnancy showed different outcome between many periods of gestational age as shown on table and figure above.

Maternal data reveals that earlier onset of preeclampsia higher maternal complication detected. Higher complication happened between gestational age 28-30 weeks.<sup>2,5</sup> But it just bit different with group of age < 28 weeks gestation age. This figure showed that EOP onset on < 30 weeks gestation age has higher complication than 30 weeks gestational age and more. The earlier severe preeclampsia starts the bigger threatened maternal complication. The most common complication were Hellp syndrome, pulmonary edema and renal failure. Pulmonary edema is typically picture of severe preeclampsia complication in Indonesia, which is this case has a big number on maternal problem in preeclampsia. This is also the reason of ICU care and ventilator needed in preeclampsia treatment procedure.<sup>6</sup> This condition differ from many maternal complication in western country, which is very limited cases of pulmonary edema on preeclampsia recorded.<sup>4,5,7</sup>

There was association between onset preeclampsia and delivery time with intra uterine demise, neonatal death, and neonatal survival. Severe preeclampsia of < 28 weeks onset is of particular concern on this data as it is associated to expectant management limit. Five of 13 infants on more than 26 weeks onset of severe preeclampsia group survived, four of them with onsets of 26 - 26 6/7 and one with onset of 27-27 6/7, but IUGR detected on one case. Meanwhile, no infants survivors on <26

weeks onset of severe preeclampsia. It is important to note that limited access to surfactant to treat/prevent RDS due to lack of funding is a major issue in Indonesia and clearly one of the causes for the relatively high institutional preterm perinatal mortality rate.<sup>2</sup>

It means that the older the gestational age, the higher neonatal survival. Most surviving infants were those terminated during 30 0/7 - 34 0/7 weeks of gestation. These numbers were clearly related to infant maturation.<sup>2,4</sup> It is reasonable to assume that a prolongation of this magnitude represent a clinically relevant neonatal benefit and lower maternal risk on certain gestational age.

### **Conclusion:**

Neonatal outcome in preterm severe preeclampsia depends mainly on GA at onset of preeclampsia and GA at delivery. Considering the high maternal morbidity and very low perinatal survival, expectant management of preeclampsia presenting at less than 28 weeks is not recommended in Indonesia with limited neonatal resources.

**Keywords:** expectant management, outcome, preterm preeclampsia, survivability

## References

1. Cunningham F G LKJ, Bloom S L, Spong C Y, Dashe J S, Hoffman B L, Casey BM, Sheffield J S. *William Obstetric* 24th edition chapter 40, hypertensive disorders: McGraw-Hill Education.; 2014.
2. Ernawati, Gumilar E, Kuntoro, Soeroso J, and Dekker. Expectant management of preterm preeclampsia in Indonesia and the role of steroids *J Maternal Fetal Neonatal Medicine*,2015
3. Sibai BM, Barton JR. Expectant management of severe preeclampsia remote from term: patient selection, treatment, and delivery indications. *American journal of obstetrics and gynecology*. 2007;196(6):514 e1-9. Epub 2007/06/06.
4. Bartsch E, Medcalf KE, Park AL, Ray JG. Clinical risk factors for pre-eclampsia determined in early pregnancy: systematic review and meta-analysis of large cohort studies. *BMJ*. 2016;353:i1753. Epub 2016/04/21.
5. Backes CH, Markham K, Moorehead P, Cordero L, Nankervis CA, Giannone PJ. Maternal preeclampsia and neonatal outcomes. *Journal of pregnancy*. 2011;2011:214365. Epub 2011/05/07.

6. Hemant S, Chabi S, Frey D. Review Article: Hellp Syndrome. J Obstet Gynecol India. 2009;59(No.1):30-40
7. Wardhana MP, Dachlan EG, Dekker G. Pulmonary edema in preeclampsia: an Indonesian case-control study. The journal of maternal-fetal & neonatal medicine : the official journal of the European Association of Perinatal Medicine, 2018;31(6):689-95. Epub 2017/03/12.

**D**i Indonesia, berdasarkan hasil evaluasi MDGs, tingkat kasus kematian ibu (AKI) dan bayi baru lahir (AKB) masih tergolong tinggi. Padahal target yang dicanangkan PBB dalam era SDGs saat ini yaitu 70/100.000 (AKI) dan 23/1.000 (AKB) kelahiran hidup.

Salah satu penyebab masih tingginya AKI-AKB adalah karena belum maksimalnya kualitas pelayanan kesehatan maternal-neonatal di berbagai tatanan fasilitas kesehatan terutama dalam penanganan kasus ibu hamil dengan pre-eklampsia serta dampak pada bayi yang dilahirkannya. Sehingga kita memerlukan rangkaian upaya strategi khususnya dalam usaha peningkatan kualitas pelayanan perinatal dengan memfasilitasi para profesional medis di bidang kesehatan ibu hamil serta bayi baru lahir, terutama para dokter spesialis kandungan, spesialis anak, dokter umum serta bidan dan perawat, untuk senantiasa meningkatkan kapabilitas profesionalitasnya dalam menurunkan angka kematian ibu-bayi dengan tanpa melupakan agar tetap menjaga kualitas luaran dari generasi bangsa dalam perspektif ilmu tumbuh kembang dan rehabilitasi medik.

Buku ini diterbitkan sebagai bahan referensi dalam proses pembelajaran demi majunya pelayanan kesehatan perinatal di tempat sejawat masing-masing bekerja, buku ini berisikan materi-materi topik yang disajikan dalam temu ilmiah yang telah berlangsung. Selamat membaca dan semoga bermanfaat bagi sejawat sekalian.



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