

Neonatal Death in Women with Severe Preeclampsia Receiving Conservative Treatment: Literature Review

Intan Dewi Angia Sari, Muhammad Ilham Aldika Akbar, Atika

Program of Obstetrics Studies, Department of Obstetrics and Gynecology,
Department of Public Health Sciences Preventive Medicine, Faculty of Medicine,
Universitas Airlangga, Indonesia

intan.dewi.angia-2018@fk.unair.ac.id, muhammad-i-a-a@fk.unair.ac.id,
atika@fk.unair.ac.id

Article Information

Submission: 04 July

2022

Accepted: 07 July 2022

Online Publish: 20 July
2022

Abstract

Introduction: In developing countries that still have places with inadequate supporting facilities, equipment and limited trained personnel, infants less than 37 weeks may still be at high risk for severe complications and even death if active management or termination is carried out, so conservative care is recommended.

Object: The aim of this study was to analyze the perinatal outcome of neonatal mortality in women with severe preeclampsia who received conservative management. **Method:** This study uses a literature review method which includes searching for articles in electronic research journal databases. Search articles using Scopus and Google Scholar with no year limit. The keywords used in the search were Preeclampsia, Conservative Management, Expectative Management, and Perinatal Outcomes. A total of 637 articles were obtained, and six articles were analyzed based on the research setting, design study, samples characteristics, and research results for each article. **Results and Discussion:** of this study are conservative management of women with severe preeclampsia can reduce neonatal mortality rates in care in developed countries, but still shows high rates of care in developing countries. **Conclusion:** of the results, this study indicate that conservative management can improve maternal outcomes in the form of neonatal mortality in developed countries

Keywords: Preeclampsia; Conservative Management; Perinatal Outcome; Neonatal Mortality;

How to Cite

Intan Dewi Angia Sari, Muhammad Ilham Aldika Akbar, Atika/Neonatal Death in Women with Severe Preeclampsia Receiving Conservative Treatment: Literature Review. Vol. 1, No. 10, July 2022

DOI

<https://doi.org/10.54543/kesans.v1i10.93>

e-ISSN/p-ISSN

2808-7178 / 2808-7380

Published by

Rifa'Isntitute

Introduction

Preeclampsia is a condition in pregnant women with de-novo hypertension that appears after 20 weeks of gestation with a blood pressure of 140/90 mmHg combined with proteinuria (>300mg/day), followed by other maternal organ dysfunction such as renal insufficiency (creatinine>90mol/L; 1 mg/dL), hepatic complications, neurologic complications, haematological complications, or *Intrauterine Growth Restriction* (IUGR) (Brown et al., 2018)

The best way to manage severe preeclampsia beyond term is controversial. Because maternal and perinatal risks are conflicting. The basis for handling severe preeclampsia is delivery (Sibai & Barton, 2007), but maternal and perinatal outcomes still show high rates, especially in developing countries that lack adequate supporting facilities and equipment (Sibai, 2013)

Management of severe preeclampsia with gestational age <34 weeks accompanied by stable maternal and fetal conditions, then pregnancy is maintained with intensive care supported by adequate health facilities, as well as corticosteroid administration (Roberts et al., 2013). Previous randomized controlled trials have demonstrated an advantage in using conservative treatment in severe preeclampsia at < 34 weeks' gestation (Sibai, Committee, & Medicine, 2011)

However, management with delivery after corticosteroid administration causes high neonatal mortality and morbidity, whereas treatment with prolongation of pregnancy with conservative management can result in fetal death, increased IUGR, and increased maternal morbidity (Sibai, 2013). Therefore, this study was made to review whether conservative management of women with severe preeclampsia is still in accordance with treatment goals or not. The aim of this study was to analyze the perinatal outcome of neonatal mortality in women with severe preeclampsia who received conservative management

Method

The literature search in this study using Google Scholar and *Scopus* filtered by keywords resulted in 637 articles. With information; *e-database Google Scholar* amounted to 566 articles, and *Scopus* as many as 71 articles. Then, the research was filtered based on language, full text and open access, research methods, and topics that the researchers wanted. Furthermore, the remaining articles were excluded as many as 631 articles, the other 6 articles were analyzed based on their characteristics in full.

Results and Discussion

1. Result

Table 1.

The main topics of this literature are perinatal and maternal outcomes.

Author, and Year	of Research Location Research	Design	Characteristics of Research Sample	Results
(Vigil-De Gracia, Montufar-Rueda, & Ruiz, 2003)	Camplejo Hospitalario 'Arnulfo Arias Madrid' de la Caja de Seguro Social in Panama Country	Retrospective	of 100 women with PEB and 29 women with Superimposed Preeclampsia, with both groups receiving conservative treatment	Oliguria, placental abruption, and HELPP syndrome were the main outcomes of both study groups with a 93% neonatal survival rate in both.
(Haddad et al., 2004)	Intercommunal Hospital of Creteil and Assistance Publique-Hopitaux de Paris (AP-HP) Cochin Port-Royal in France.	Prospective observational	239 women with PEB in the period from January 1, 1996 to December 31, 2001, who did not deliver after antenatal steroid prophylaxis	Maternal and perinatal outcomes were significantly worse in PEB pregnant women with UK <29 weeks.
(Swamy, Patil, & Nageshu, 2012)	Tertiary Hospital in India.	Retrospective observational	94 singleton PEB pregnant women with UK between 24 and 34 weeks in the period 01 August 2005 to 31 July 2006	Maternal outcome had a significantly worse outcome in PEB women with UK < 28 weeks, whereas perinatal outcome is worse in PEB women with UK > 30 weeks
(Nwafor et al., 2020)	Alex Ekwueme Federal University Teaching Hospital in Southern Nigeria Country	Retrospective	of 118 PEB women with UK < 34 weeks in the period January 1, 2012 to December 31, 2018	Maternal outcomes were found in this study but did not have a high rate, while perinatal mortality was 57.6%.
(Sanjanwala et al., 2022)	University of Alabama in the State of Alabama	<i>Single-center retrospective cohort of</i>	543 PEB women with UK between 23 and 34 weeks from January 2013 to December 2017	There was no significant difference between maternal outcomes and outcomes perinatal care in women who received pre- and post-guided care.

(Hall, Odendaal, Kirsten, Smith, & Grove, 2000)	Tertiary Hospital in South Africa	<i>Prospective case series</i>	340 women with early onset PEB with stable mother and fetus, in the period April 1992 to March 1997	Perinatal outcome in this study was good, but intensive care in neonates were required in 40.7% of cases.
---	-----------------------------------	--------------------------------	---	---

2. Discussion

Neonatal death is one of the major perinatal outcomes of severe preeclampsia along with fetal death, respiratory distress syndrome, necrotizing enterocolitis, intraventricular hemorrhage, sepsis, seizures, and hyperbilirubinemia (Swamy et al., 2012). The study of Swamy, et al (2012) at the Indian Tertiary Hospital had a neonatal mortality of 5% due to respiratory distress syndrome and pneumonia with a mean gestational age of 30 weeks (Swamy et al., 2012). Nwafor, et al (2020) had different results in their study, neonatal mortality in this study in Southeastern Nigeria was quite high at 35.6% with details 70% in PEB women with UK 28-30 weeks, 15.4% in UK 31 -32 weeks, and 30.8% in UK 33- <34 weeks (Nwafor et al., 2020)

A study by Vigil-Degracia, et al (2002) at the Hospital in Panama found that women with PEB who were treated conservatively had a 93% neonatal survival rate (Vigil-De Gracia et al., 2003). There were 20 neonatal deaths out of 340 cases of PEB (6%) in the study conducted by Hall, et al (2000) in South Africa with 66% of neonatal deaths in women with UK <29 weeks, 5% in UK ≤ 29 -<32 weeks, and 2% in UK ≥ 32 weeks (Hall et al., 2000). Haddad, et al (2004) in France also had satisfactory results with a neonatal mortality percentage of 3%, namely 3% in PEB women with UK <29 weeks and without neonatal mortality in UK ≥ 29 - ≥ 32 weeks (Haddad et al., 2004). There was no significant difference but there was a slight increase in the study of Sanjanwala, et al (2022) namely 2.7% of neonatal deaths in women treated according to ACOG guidelines, while the other group had a neonatal mortality rate twice as high (Sanjanwala et al., 2022)

In *literature review*, the authors found that neonatal mortality occurred on average in PEB women < 30 weeks' gestation, with the highest neonatal mortality rates occurring in developing countries. This is in accordance with the statement mentioned by Nwafor et al, (2020) that there is a significant difference in the neonatal life rate between PEB women treated in developed and developing countries, the lower limit of neonatal life rate in developed countries is in PEB women with UK < 24 weeks, but in developing countries there are still failures even though the UK has entered 30 weeks due to limited treatment facilities (Nwafor et al., 2020)

Conclusion

The results of this study indicate that conservative management can improve maternal outcomes in the form of neonatal mortality in developed countries, but research in developing countries does not show any improvement due to limited treatment facilities.

There is a need for prospective studies in other developing countries, so that a wider picture of perinatal outcomes in the form of neonatal mortality can be seen in pregnant women with severe preeclampsia who receive conservative care.

Reference

- Brown, Mark A., Magee, Laura A., Kenny, Louise C., Karumanchi, S. Ananth, McCarthy, Fergus P., Saito, Shigeru, Hall, David R., Warren, Charlotte E., Adoyi, Gloria, & Ishaku, Salisu. (2018). Hypertensive disorders of pregnancy: ISSHP classification, diagnosis, and management recommendations for international practice. *Hypertension*, 72(1), 24–43.
- Haddad, Bassam, Deis, Stéphanie, Goffinet, François, Paniel, Bernard J., Cabrol, Dominique, & Siba, Baha M. (2004). Maternal and perinatal outcomes during expectant management of 239 severe preeclamptic women between 24 and 33 weeks' gestation. *American Journal of Obstetrics and Gynecology*, 190(6), 1590–1595.
- Hall, D. R., Odendaal, H. J., Kirsten, G. F., Smith, J., & Grove, D. (2000). Expectant management of early onset, severe pre eclampsia: perinatal outcome. *BJOG: An International Journal of Obstetrics & Gynaecology*, 107(10), 1258–1264.
- Nwafor, Johnbosco Ifunanya, Ugoji, Darlington Peter Chibuzor, Onwe, Blessing Idzuinya, Obi, Vitus Okwuchukwu, Obi, Chuka Nobert, Onuchukwu, Victor Jude Uchenna, & Ibo, Chukwunyenye Chukwu. (2020). Pregnancy outcomes among women with early-onset severe preeclampsia managed conservatively. *Sahel Medical Journal*, 23(1), 1.
- Roberts, James M., August, Phyllis A., Bakris, George, Barton, J. R., Bernstin, I. M., & Gynecologists, American College of Obstetricians and. (2013). Task force on hypertension in pregnancy. *Hypertension in Pregnancy. Obstetrics & Gynaecology*, 122(5), 1122–1131.
- Sanjanwala, Aalok R., Jauk, Victoria C., Cozzi, Gabriella D., Becker, David A., Harper, Lorie M., Casey, Brian M., Tita, Alan T., & Subramaniam, Akila. (2022). Outcomes before and after adopting guidelines for expectant management of severe preeclampsia. *American Journal of Perinatology*, 39(02), 172–179.
- Sibai, Baha M. (2013). What to expect from expectant management in severe preeclampsia at < 34 weeks gestation: pregnancy outcomes in developed vs developing countries. *American Journal of Obstetrics & Gynecology*, 209(5), 400–401.
- Sibai, Baha M., & Barton, John R. (2007). Expectant management of severe preeclampsia remote from term: patient selection, treatment, and delivery indications. *American Journal of Obstetrics and Gynecology*, 196(6), 514-e1.
- Sibai, Baha M., Committee, Publications, & Medicine, Society for Maternal Fetal. (2011). Evaluation and management of severe preeclampsia before 34 weeks' gestation. *American Journal of Obstetrics and Gynecology*, 205(3), 191–198.

- Swamy, M. K., Patil, Kamal, & Nageshu, Shailaja. (2012). Maternal and perinatal outcome during expectant management of severe pre-eclampsia between 24 and 34 weeks of gestation. *The Journal of Obstetrics and Gynecology of India*, 62(4), 413–418.
- Vigil-De Gracia, Paulino, Montufar-Rueda, Carlos, & Ruiz, Juan. (2003). Expectant management of severe preeclampsia and preeclampsia superimposed on chronic hypertension between 24 and 34 weeks ♦ gestation. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 107(1), 24–27.

Copyright holder:

Intan Dewi Angia Sari, Muhammad Ilham Aldika Akbar, Atika (2022)

First publication right:

KESANS: International Journal Health and Science