INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH AND ANALYSIS

**ISSN[Online] : 2643-9875 || ISSN[Print] : 2643-9840**

Volume 3 Issue 01 January 2020

Page No.- 09-14

# Maternal and Perinatal Outcomes in Advanced Maternal Age

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**ABSTRACT**

**Backgrounds:** Advanced maternal age is defined as pregnancy that occurs at more 35 years old. This condition is considered as high risk pregnancy due to its close association with maternal and perinatal complications. This study was performed to reveal the data of advanced maternal age and its complications.

**Methods:** This study was a descriptive retrospective study performed by taking data of advanced maternal age in Sitti Fatimah and Pertiwi Mother and Child Hospital in Makassar in 2015 – 2016.

**Results:** There were 2,342 (15.7%) with advanced maternal age which most frequently occur at 35 - 39 years old group (74.6%) and mostly were multiparous. Hypertensive disorders were the most frequent pregnancy complications at older age comprising of 33.1% cases. Premature delivery, low birth weight, and fetal growth disorders were the most frequent fetal complications comprising of 17.7%14.1% and 10.2% of cases respectively. 88.9% newborn had a 5 minutes APGAR score $\geq$ 8.

**Conclusions:** Advanced maternal age was closely related to pregnancy and neonatal complications, such as hypertensive disorders, preterm delivery and low birth weight.

**KEYWORDS:** Advanced maternal age, Pregnancy complications

## BACKGROUDS

One of the biggest challenges to health problems in the world is maternal death. At present, the actual maternal mortality rate is uncertain and can only be estimated. The global maternal mortality rate has reached 251 (221-289) per 100,000 live births. Reducing maternal mortality is the fifth point of millenium development effort while the point emphasizes the maternal mortality rate must go down by 75%. The maternal mortality rate in Indonesia is about 305 per 100,000 live births in 2015 [1,2]

For the last three decades, the number of women who postponed pregnancy has begun to increase due to educational and socio-economic reasons. Advanced maternal age is defined as pregnancy that occurs at 35 years or older, associated with some of the consequences of a unfavorable pregnancy, preterm labor, low birth weight births, chromosomal damage, delivery complications, and increased possibility of cesarean section surgery. Therefore it is categorized as "high risk" pregnancy.[3]

## METHODS

This study was a descriptive retrospective study conducted by taking data on pregnant women aged ≥ 35 years old from medical records at Siti Fatimah and Pertiwi Mother and Child Hospital in Makassar in January 2015 to December 2016.

Data include maternal age, gestational age at delivery, number of fetuses, fetal birth weight, mode of delivery, APGAR score (asphyxia) and complications that occur during pregnancy.

## RESULTS

In the period of 1st January 2015 to 31st December 2016, there were 14,897 cases of childbirth in Siti Fatimah and Pertiwi Mother and Child Hospital. There were 2,342 (15.7%) pregnant women at $\geq$ 35 years old, with details in Siti Fatimah Mother and Child Hospital as many as 843 cases (12.8%) and Pertiwi Mother and Child Hospital as many as 1,499 cases (18.1%). These data is shown in Table 1.

**Table 1. Pregnant women aged < 35 years old and ≥ 35 years old in 2015- 2016**

| Age | Siti Fatimah | | | Pertiwi | | | Total | Total (%) |
|---|---|---|---|---|---|---|---|---|
| | 2015 | 2016 | (%) | 2015 | 2016 | (%) | | |
| ≥ 35 years old | 386 | 457 | 12,8 | 771 | 728 | 18,1 | 2342 | 15,7 |
| < 35 years old | 2835 | 2924 | 87,2 | 3591 | 3205 | 81,9 | 12555 | 84,3 |
| **Total** | **3221** | **3381** | **100 %** | **4362** | **3933** | **100%** | **14897** | **100%** |

From the data of pregnant women with advanced maternal age, the most frequent age group is 35-39 years old as many as 1,748 (74.6%). The age group of 40-44 years old is still quite high, with 532 cases (22.7%). There was also pregnant women of 50 years old, when other women have experienced menopause as shown in Table 2.

**Table 2. Distribution of age groups in pregnant women ≥ 35 years old in 2015-2016**

| | Siti Fatimah | | | | Pertiwi | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Age | 2015 | **(%)** | 2016 | (%) | 2015 | (%) | 2016 | (%) | Total (%) |
| **35-39** | 262 | 11,2 | 348 | 14,8 | 588 | 25,1 | 550 | 23,5 | 74,6 |
| **40-44** | 113 | 4,8 | 93 | 4 | 159 | 6,8 | 167 | 7,1 | 22,7 |
| **45-49** | 11 | 0,5 | 16 | 0,7 | 23 | 1 | 11 | 0,5 | 2,7 |
| **50-54** | 0 | 0 | 0 | 0 | 1 | 0,04 | 0 | 0 | 0,04 |
| **Total** | **386** | **16,5** | **457** | **19,5** | **771** | **32,94** | **728** | **31,1** | **100** |

From 2,342 pregnant women aged ≥ 35 years old, 317 were nullipara, 413 primiparous, 1368 multiparous and 244 grand emultipara (Figure 1), where the oldest age found was 50 years old.

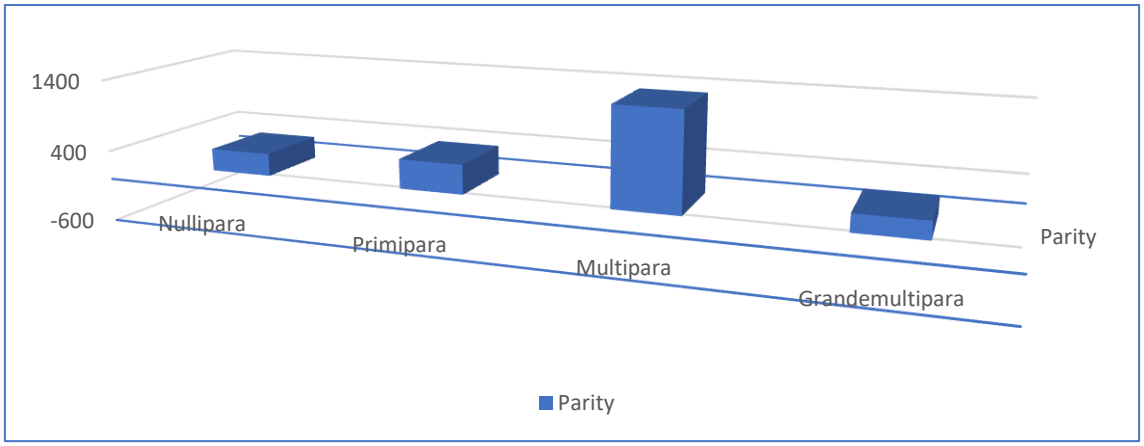


**Figure 1. Group of pregnant women aged ≥ 35 years old based on the number of parity**

In this study, there were 776 cases (33.1%) of hypertensive disorder in advanced maternal age. Including 62 cases (2.6%) with gestational hypertension, 127 cases (5.4%) chronic hypertension, 203 cases (8.7%) preeclampsia, 317 cases (13.5%) severe preeclampsia, 17 cases (0.7%) of eclampsia, 41 cases (1.8%) superimposed preeclampsia, and 9 cases (0.4%) with HELLP syndrome as shown in figure 2.

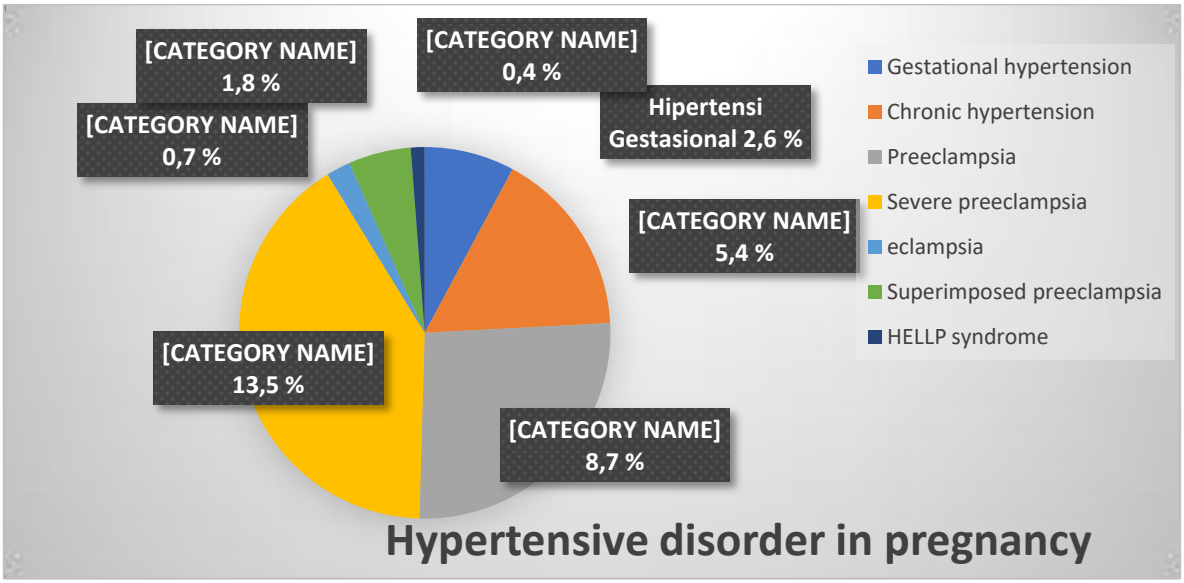


**Figure 2. Complications of hypertensive disorder in pregnancy in mothers aged ≥ 35 years old**

In 2015-2016, from 2.342 pregnant women with advanced maternal age, there were 414 cases of preterm deliveries (17.7%), 776 cases with hypertension in pregnancy (33.1%), 96 cases of antepartum hemorrhage(4.1%) including 3.8% cases of placenta previa and 0.3% cases of abruptio placenta. There were also 49 cases (2.1%) multiple pregnancies, 364 cases (15.5%) of abnormal fetal lie and presentation, and 331 cases (14.1%) low birth weight babies (LBW). There were 239 cases (10.2%) of fetal growth disorders, including 179 cases (7.6%) of fetal growth restriction and 60 cases (2.6%) of macrosomia (large children). From those 60 cases of macrosomia, there were 19 cases of newborns with obese mothers with the largest infant weight was 5980 grams. There were 6 cases (0.3%) of congenital abnormalities of newborns, and 67 cases (2.9%) of intrauterine fetal deaths. This is shown in table 3.

**Table 3. Pregnancy complications and perinatal outcomes**

| Post Partum Complications | Total | Total (%) |
|---|---|---|
| **Preterm Delivery** | **414** | **17,7 %** |
| **Hypertension in Pregnancy** | **776** | **33,1 %** |
| - Gestational hypertension | 62 | 2,6 % |
| - Chronic hypertension | 127 | 5,4 % |
| - Preeclampsia | 203 | 8,7 % |
| - Severe preeclampsia | 317 | 13,5 % |
| - Superimposed preeclampsia | 41 | 1,8 % |
| - Eclampsia | 17 | 0,7 % |
| - HELLP syndrome | 9 | 0,4 % |
| **Antepartum Hemorrhage** | **96** | **4,1 %** |
| - Placenta previa | 89 | 3,8 % |
| - Abruptio placenta | 7 | 0,3 % |
| **Multiple Pregnancies** | **49** | **2,1 %** |
| **Abnormal fetal lie and presentation** | **364** | **15,5 %** |
| **Low birth weight** | **331** | **14,1 %** |
| **Fetal Growth Disorders** | **239** | **10,2 %** |
| - Fetal Growth Restriction | 179 | 7,6 % |
| - Macrosomia | 60 | 2,6 % |

| | | |
|---|---|---|
| **Congenital abnormalities** | **6** | **0,3 %** |
| Intrauterine Fetal Death | **67** | **2,9 %** |
| **TOTAL** | **2342** | **100%** |

From the data we obtained, the types of delivery of 2.342 pregnant women aged ≥ 35 years old were 1.305 cases (55.7%) of spontaneous vaginal delivery, 49 cases (2.1%) of breech delivery, 27 cases (1.2%) of vacuum extraction, and 961 cases (41%) of cesarean section as shown in figure 3.

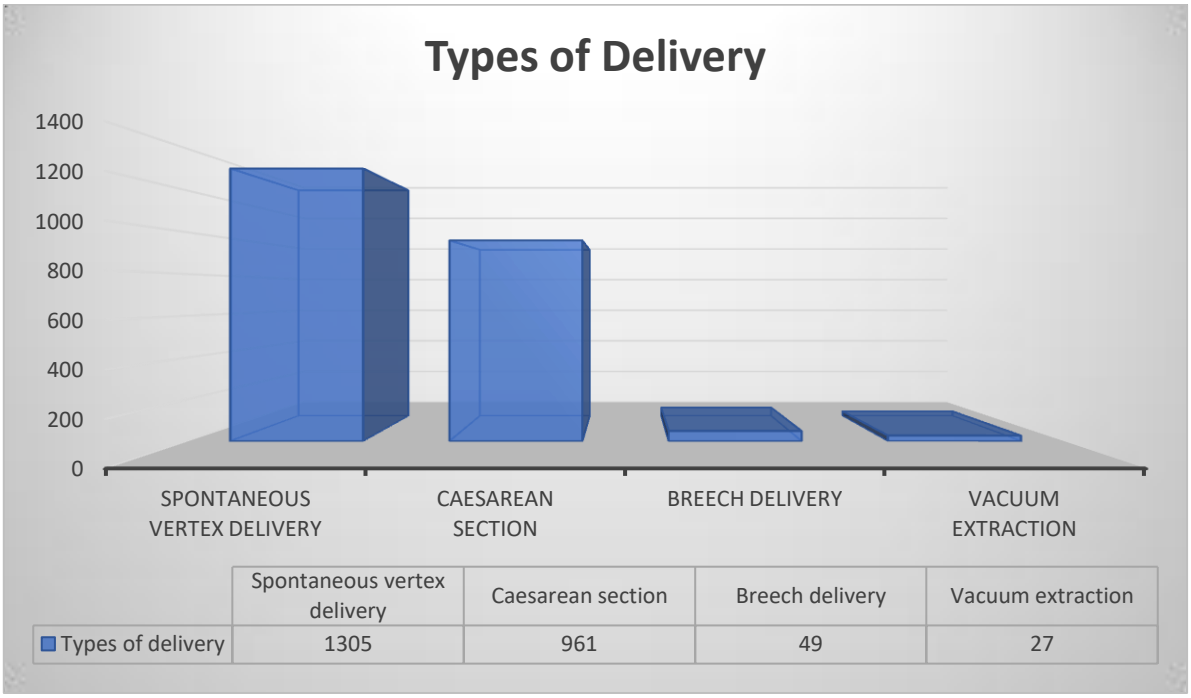


**Figure 3. Types of Delivery**

From 961 cases of maternal birth with cesarean section, 322 cases (13.7%) were performed with indication of f previous Caesarean section, 89 cases (3.8%) with a history of placenta previa, 7 cases (0.3%) with abruptio placenta, 78 cases (3.3%) with severe preeclampsia, 46 cases (2%) with prolonged labor, 233 cases (10%) with malposition, 31 cases (1.3%) with fetal distress, 17 cases (0.7%) with primary infertility, 60 cases (2.6%) due to large babies, 37 cases (1.6%) with contracted pelvis, 30 cases (1.3%) with multiple pregnancies, and 11 cases (0.5%) with tumor of the birth canal (Table 4).

**Table 4. Indications for Cesarean Section**

| Indications | Total | Total (percent) |
|---|---|---|
| Placenta previa | 89 | 3,8 % |
| Abruptio placenta | 7 | 0,3 % |
| Severe preeclampsia | 78 | 3,3 % |
| Prolonged labor | 46 | 2 % |
| Malposition | 233 | 10 % |
| Previous Caesarean section | 322 | 13,7 % |
| Fetal distress | 31 | 1,3 % |
| Primary Infertility | 17 | 0,7 % |
| Macrosomia | 60 | 2,6 % |
| Contracted pelvic | 37 | 1,6 % |
| Multiple Pregnancies | 30 | 1,3 % |
| Birth Canal Tumor | 11 | 0,5 % |
| **TOTAL** | **961** | **100 %** |

Results of neonatal outcome in mothers with advanced maternal age assessed by APGAR score revealed that there were are 2082 cases (88.9%) newborn with APGAR scores in the first 5 minutes of 8-10, APGAR score <8, 66 cases (2.8%) APGAR score <5, and 14 cases (0.6%) of stillbirth as shown in table 5.

**Table 5. Neonatal outcomes**

| 5 minutes APGAR Score | Total | Percent |
|---|---|---|
| **8-10** | **2082** | **88,9 %** |
| **5-7** | **180** | **7,7 %** |
| **< 5** | **66** | **2,8 %** |
| **Stillbirth** | **14** | **0,6 %** |
| **TOTAL** | **2342** | **100 %** |

## DISCUSSION

There was an age shift tendency of women giving birth for the first time, due to the developments in education and the expansion of employment. This makes most women postpone pregnancy until the age of 35.[4]Advanced maternal age is categorized as high-risk pregnancy thereby increasing morbidity and mortality in both mother and fetus.[5]

Advanced maternal age is closely related to the occurrence of preterm birth, intrauterine fetal death, and fetal death of unknown cause.[6]Research by Lisonkova et al found that intrauterine fetal death was the same in primigravida and multigravida.[7] There was also a research conducted by Sibuea et al in Prof. Dr. RD Kandou Manado that found 64 cases of perinatal death, consisting of 48 cases of stillbirth and 16 cases of early neonatal death.[8] Meanwhile, our study found 414 (17,7%) preterm births , 67 (2.9%) cases of intrauterine fetal death

Hypertension in pregnancy is often found in older age.[3] According to a study conducted by Prianita at Kariadi Hospital Semarang in 2010, the percentage of preeclampsia in the older primigravida group was quite high, may result from by damage to the endothelial blood vessels that are affected by the aging process.[9] In this study, we found the number of women with hypertension in pregnancy in older age was 776 (33.1%) consists of 62 women (2.6%) with gestational hypertension, 127 women (5.4%) with chronic hypertension, 203 women (8.7%) with preeclampsia, 317 women (13.5%) with severe preeclampsia, 9 women (0.4%) with HELLP syndrome, 41 women (1.8%) with superimposed preeclampsia and 17 women (0.7%) with eclampsia.

In our study, 331 cases (14.1%) of low birth weight babies were found, resembling to what was obtained by Damayanti and Pramono in 2008 at Kariadi Hospital. This can occur because of the increase in maternal age is related to biological aging in tissues and the accumulated effects of maternal systemic disease.[10] As to what Jacobson has stated, giving birth in old age increases the risk of LBW. [11]

## CONCLUSIONS

From the results of research on maternal outcome in pregnancies with advanced maternal age conducted at Siti Fatimah and Pertiwi Mother and Child Hospital from January 2015 to December 2016, it was found that pregnancy in older age was closely related to pregnancy complications, such as preeclampsia to eclampsia, premature birth and intrauterine fetal death.

## SUGGESTION

We need better antepartum management is needed in pregnant women over 35 years of age in terms of quality and quantity. Better antepartum management can prevent and reduce existing complications. Increase knowledge of family planning and use of contraception in health facilities to prevent pregnancy in old age.

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