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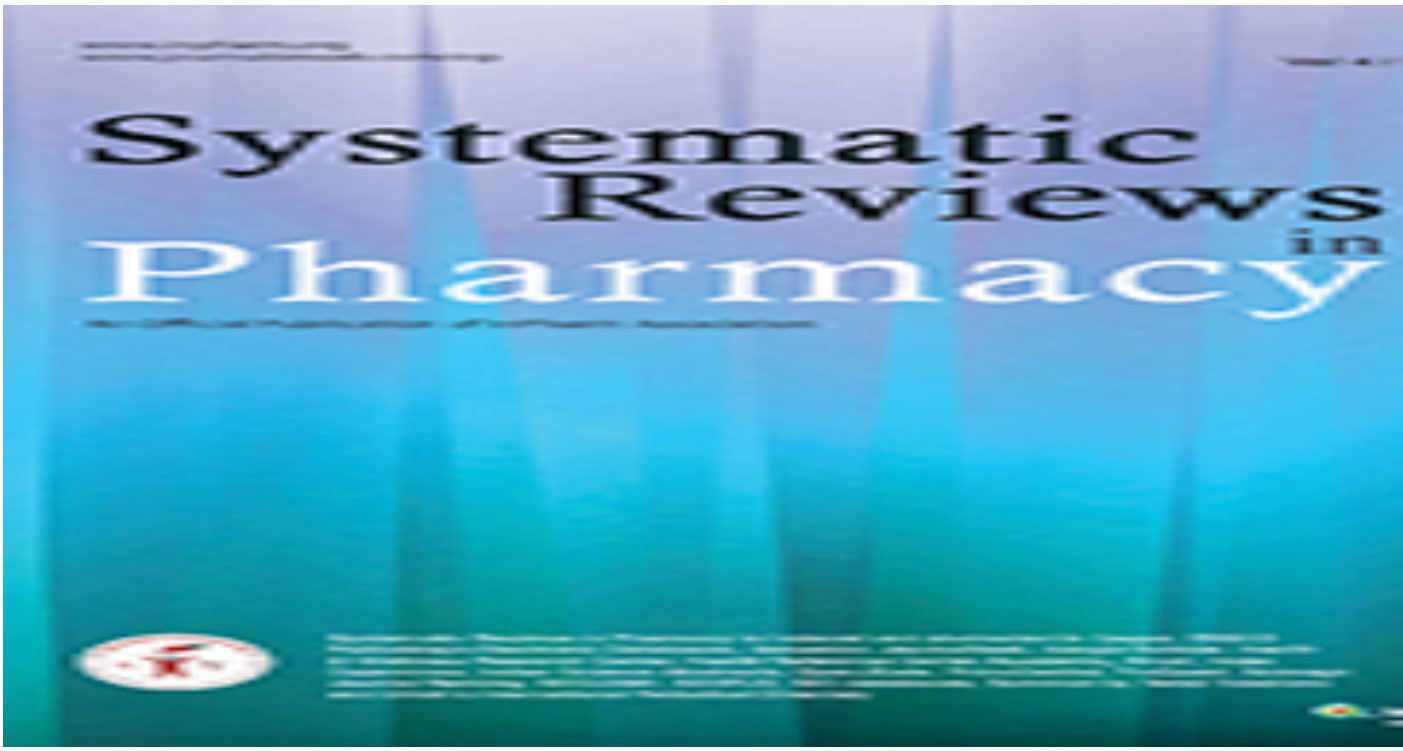

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MATERNAL AND PERINATAL OUTCOME OF WOMEN WITH OBESITY IN PREGNANCY

Hermanto Tri Joewono[1]*, Agus Sulistyono[1], Yulisa Haslinda[2], Aditiawarman[1]
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ABSTRACT

Nowadays, obesity is a global problem because of the increasing incidence. This study aimed to explore the characteristics of maternal and perinatal outcomes of obesity pregnancy in Obstetric Outpatient at Dr. Soetomo General Hospital, Surabaya from 2013 to 2015. This was a descriptive and observational analytic study. This study used secondary data from medical records, and the subjects were divided into two groups. There were 241 (7.4%) pregnant women with obesity and only 147 (61%) of 241 delivered in Dr. Soetomo Hospital, Surabaya. Most complications were preeclampsia (25.8%), dyslipidemia (24.5%), and gestational diabetes (18.4%). Most of delivery mode was abdominal delivery in 89 subjects (60.5%). The majority of subjects needed treatment for less than 5 days in 125 subjects (85%). There was significant difference in preeclampsia, the length of stay (LOS), low birth weight, asphyxia, and IUFD compared to maternal-perinatal outcomes of obesity who had antenatal outside Dr. Soetomo Hospital. Whereas, we found no significant difference in caesarean section, surgical wound infection and macrosomia in both groups. Most of delivery mode in obese pregnancy women was caesarean section delivery. Most complications in labor with obesity were preeclampsia, dyslipidemia, and gestational diabetes. There was significant difference in preeclampsia and length of stay, birth weight, asphyxia, and IUFD in both groups.

Keywords: antenatal care, maternal outcomes, obesity, outpatient clinic, perinatal outcomes.

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INTRODUCTION

Nowadays, obesity is a global problem because of the increasing incidence. WHO cited in 2005 400 million cases of obesity, and the number increased to 700 million in 2015 (1,2). The prevalence of obesity is higher in women than in men. RCOG reports that the prevalence of obesity in pregnancy ranges from 16-19% (1). Obesity is a risk factor for metabolic syndromes which is related to the increased risk of various non-communicable Diseases (NCDs) (3). Obese pregnant women have a high risk of pregnancy complications and fetal outcomes. RCOG reports that around 28 maternal deaths in 2003-2005 occurred in obese mothers (1,4,5). Management of obesity in pregnancy is very important to prevent these complications.

East Java Province is included in the top fifteen with the national obesity prevalence above (6). There was an increase number of deliveries in obese women from 2013 to 2015 at the Dr. Soetomo General Hospital, Surabaya. In 2013 there were 57 cases with a diagnosis of co-obesity in 2109 deliveries in the delivery room or 2.7. In 2014, obesity cases increased to 123 cases from 1774 cases or 6.9 of the total and in 2015 increased to 133 cases from a total of 1278 cases or 10.4. Complications that can be experienced by pregnant women with morbid obesity include the risk of thromboembolism, preeclampsia, eclampsia seizures, and increased labor induction rates (7).

Unit of obstetric at Dr. Soetomo General Hospital has a special section for obese patients. All obese pregnant patients are controlled and screened to prevent complications of maternal and perinatal outcomes. Delivery assistance is needed by adequate health workers in a adequate health facility because if complications occur, such as preeclampsia, it can be treated immediately (8). Therefore, this study aimed to explore the characteristics, maternal and perinatal outcomes of obesity pregnancy in Obstetric Unit at Dr. Soetomo General Hospital, Surabaya from 2013 to 2015.

METHODS

This was a descriptive and observational analytic study. This study used secondary data from medical records. The study was conducted at the Department of Obstetrics and Gynecology and Outpatient Medical Record section of Dr. Soetomo General Hospital, Surabaya, Indonesia. The subjects were divided into two groups, obese women who did antenatal care (ANC) at Dr. Soetomo General Hospital and obese women who did not do antenatal care at Dr. Soetomo General Hospital.

The inclusion criteria of this study were the medical records of obese pregnant patients who did antenatal examinations and gave birth at Dr. Soetomo General Hospital starting from January 2013 to December 2015. Whereas, the exclusion criteria were that medical records were not found, or medical record data could not be read and incomplete. The results of the study were presented descriptively in table form. Data analysis was calculated using the chi Square Test and the Fisher Test as an alternative to determine differences between two groups. Differences between variables were considered statistically significant if p values <0.05 were obtained with a 95% confidence interval.

RESULTS

This study found 241 (7.4%) pregnant women with obesity of 3244 women who did ANC at Dr. Soetomo General Hospital, Surabaya. Only 147 pregnant women with obesity gave birth at dr. Soetomo Hospital, Surabaya. In the course of antenatal examination, 21 pregnant women did not complete their antenatal examination because they wanted to give birth outside the city, as many as 12 pregnant women gave birth in private practice midwives, 19 pregnant women gave birth in other hospitals due to BPJS (Insurance and Social Security in Indonesia) referral flow constraints, and 42 pregnant women could not be contacted.

Characteristics of pregnant women with obesity who gave birth at Dr. Soetomo General Hospital are presented in Table 1. Most subjects under the age of 35 were 93 subjects (63.2%). The most complication in labor with obesity was preeclampsia in 38 (25.8%) patients, followed by dyslipidemia in 36 (24.5%) patients, and gestational diabetes in 27 (18.4%) patients. Most of delivery mode was abdominal delivery in 89 subjects (60.5%). The majority of subjects needed treatment for less than 5 days in 125 subjects (85%). The average length of stay (LOS) of subjects was 3.8±2.24 days, ranging 1-12 days.

Table 1. Characteristics of Subjects (n=147)

Characteristics	n	Percentage (%)
Age (years)		
≤35	93	63.2
>35	53	36.7
BMI (kg/m^2), mean±SD	39.01±8.3	
30-34.9	81	55
35-39.9	41	27.9
>40	25	17
Complication		
Preeclampsia	38	25.8
Dyslipidemia	36	24.5
Diabetes gestational	27	18.4
Chronic hypertension	13	0.09
Abortion history	21	8.7
Infertility history	7	0.04
Etc.	5	0.03
Mode of delivery		
Caesar section	89	60.5
Induction	35	23.8
Spontaneous	23	15.6
LOS (day), mean±SD	3.8±2.24	
≤ 5	125	85%
5-10	16	11%
>10	5	4%

BMI: Body Mass Index; LOS: Length of Stay

Table 2 shows the characteristics of perinatal outcomes. Approximately 117 (78%) infants were born to obese mothers and had a birth weight of more than 2500 grams with an mean birth weight of 2937±603 grams. The majority of perinatal outcomes had Apgar scores of more than 7 (130 infants, 86%). Complications in perinatal outcomes in obese mothers were macrosomia, intrauterine growth restriction (IUGR), Intra-Uterine Fetal Death, and congenital abnormalities, 7 (4.6%), 3 (2%), 1 (0.7%), and 3 (0.7%), and 3 (0.7%), and 3 (0.7%), respectively.

Table 2. Characteristics of Perinatal (n=151)

Characteristics	n	Percentage (%)
Birth weight (gram), mean±SD	2937±603	
<2500	34	22.5
≥2500	117	77.5
APGAR Score		
0-3	130	86
4-6	17	11
≥7	4	3
Complication		
Macrosomia	7	4.6
IUGR	3	2
IUFD	1	0.7
Congenital abnormalities	3	2
Normal	137	90.7

IUGR: intrauterine growth restriction; IUFD: Intra Uterine Fetal Death

Analysis of differences in maternal and perinatal outcomes with obese pregnancy labor was carried out at obese women who did ANC at Dr. Soetomo General Hospital and obese women who did not do antenatal care at Dr. Soetomo General Hospital. Table 3 and Table 4 display that there are significant differences in maternal outcomes in preeclampsia and length of stay (p = 0.000; p = 0.001, respectively) and in perinatal outcomes for birth weight, asphyxia, and IUFD in the 2 groups (p = 0.01; p = 0.001; p = 0.027, respectively).

Table 3. Maternal Outcome in Obesity Labor

Maternal Outcome	ANC Place				P
	DSGH		Non DSGH		
	N	%	N	%	
Preeclampsia					**0.000**
Yes	38	25.9	96	59.6	
No	109	74.1	65	40.4	
Caesar section					0.874
Yes	89	60.5	95	59.0	
No	58	39.5	66	41.0	
Surgical wound infection					0.272
Yes	0	0	2	1.2	
No	147	100	149	98.8	
Length of stay (LOS)					**0.001**
>5 days	21	14.3	50	31.1	
≤5 days	126	85.7	111	68.9	

*DSGH: dr. Soetomo General Hospital; Non DSGH: non- dr. Soetomo General Hospital

DISCUSSION

Most of delivery mode in obese pregnancy women is caesarean section delivery. Most complications in labor with obesity are preeclampsia, dyslipidemia, and gestational diabetes. In this study, there were significant differences in preeclampsia, length of stay, birth weight, asphyxia, and IUFD in two groups.

The proportion of pregnancies with obesity in this study (7.4%) was smaller than the proportion of obese in pregnancy in general in Indonesia. In other tertiary hospitals in Indonesia, the proportion was greater than 19.19 of total 2014-2015 deliveries. This was consistent with the prevalence of obesity in pregnancy globally, which is 1.8-25.3. In developed countries. as in the United Kingdom, the prevalence of obesity in pregnancy ranged from 7.6 to 15.6 in 1989-2007 (9,10).

Table 3. Perinatal Outcome in Obesity Labor

Perinatal Outcome	ANC Place				P
	DSGH		Non DSGH		
	N	%	N	%	
LBW					**0.01**
Yes	34	22.5	61	36.3	
No	117	77.5	107	63.7	
Asphyxia					**0.001**
Yes	21	13.9	60	35.7	
No	130	86.1	108	64.3	

Macrosomia					0.944
Yes	7	4.6	9	5.4	
No	144	95.4	159	94.6	
IUFD					**0.027**
>5 days	1	0.7	8	4.8	
≤5 days	150	99.3	160	95.2	

*DSGH: dr. Soetomo General Hospital; Non DSGH: non- dr. Soetomo General Hospital; LBW: Low birth weight <2500 gram ; IUFD: Intra Uterine Fetal Death

In this study, data obtained showed that about 60.5% of deliveries were performed in abdominal delivery. This was higher than that in study in Brazil which found that about 53.2% obese women was performed caesarean delivery (11). The obese women had a 1.8 risk of cesarean delivery (95% CI: 1.5-2.0) compared to normal weight women, although, cesarean deliveries can increase maternal complications (11,12).

The majority of pregnancy complications in this study were preeclampsia, dyslipidemia and gestational diabetes. Obesity in pregnancy is associated with an increased risk of gestational diabetes, i.e., OR of 3.56 (95% Cl, 3.05-4.21)(13). Distribution of obese patients with dyslipidemia showed that the majority suffered from hypertriglyceridemia, followed by hypercholesterolemia and decreased HDL. This was consistent with study which showed that the characteristics of dyslipidemia occurring in obesity are hypertriglyceridemia and a decrease in HDL levels (14). Previous study conducted in India stated that hypertriglyceridemia occurs in obesity of 42.7% (15).

Findings in this study obtained a significant difference maternal outcomes in preeclampsia compared to obese women who did not do antenatal care at Dr. Soetomo General Hospital, Surabaya. Preeclampsia is a complication that occurs in 2-8% of total pregnancies. One of the risk factors for preeclampsia is obesity. Research in Pennsylvania stated that about 30% of preeclampsia patients are obese (16). Obesity increases the risk of preeclampsia 2-3 times compared to a normal weight pregnancy. Preeclampsia is a major cause of maternal morbidity and mortality (17). If the medical treatment delay, including delay in identified pregnancy risk and dangerous sign, delay in accessibility to health facilities and taking good health services, maternal mortality may occur (18).

This study found no significant differences in maternal outcome of wound infection in both groups. Nevertheless, of all obese patients any wound infection was not found. This findings were in contrast with another study which stated that obesity is associated with the incidence of wound infection. Various mechanisms of obesity that increase the risk of wound infection include nutritional deficiencies, inflammation, vascular disorders, venous insufficiency, oxidative stress and cellular, and molecular changes (19). Other some cases showed that the women get infection after caesar delivery caused by gastroduodenal perforation due to peptic ulcer disease, although it is rare (20,21).

Previous report revealed the increased risk and complications of pregnancy with obesity are related to length of stay and health costs of each patient (22). When compared with obese patients who did not do ANC at dr. Soetomo General Hospital, more than half of subjects had the length of stay less than 5 days. There was significant difference in length of stay between two groups.

There was no difference in perinatal outcomes of macrosomia in both groups. However, there are many factors that can cause excessive fetal growth to occur macrosomia in obese patients, including maternal nutrition and weight gain during pregnancy. It was contrary with another meta-analysis study which said the prevalence of macrosomia in pregnancy with obesity was 13.3% -14.6% with an odd ratio of 2-3 times compared to a normal pregnancy (23).

There was difference in birth weight, asphyxia, and IUFD as perinatal outcomes. This findings were in line with other studies. A meta-analysis study stated that the odd ratio of low birth weight was 1.4 (95% Cl, 0.9-2.1) (24). Low birth is also associated with other diseases, such as anemia (25). Study in Sweden between 1992-2010 mentioned an odd ratio for the occurrence of severe asphyxia in women with a BMI of 30-34.9: 1.57 (95% CL, 1.20-2.07); BMI 35-39.9: 1.8 (95% Cl, 1.15-2.82) and BMI> 40: 3.41 (95% Cl, 1.91-6.09) (26). Besides, obesity in pregnancy increases the risk of IUFD 2-fold compared to normal weight pregnancies (27). One case of IUFD was found in obese patient with other accompanying dyslipidemia and chronic hypertension. The patient did the second antenatal examination at 24 weeks of gestation and was diagnosed with as an IUFD. The pregnancy termination was performed by induction of labor.

CONCLUSION

Most of delivery mode in obese pregnancy women was caesarean section delivery. Most complications in labor with obesity were preeclampsia, dyslipidemia, and gestational diabetes. There were significant differences in preeclampsia and length of stay, birth weight, asphyxia, and IUFD in both groups.

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