Risk Factors of Diabetes Mellitus Occurrence Gestasional

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Abstract

Diabetes mellitus Gestational (DMG) is a disorder of carbohydrate tolerance happens or first known at the time of pregnancy is underway. This situation is common at the moment 24 weeks gestational age and most sufferers will be back to normal on after giving birth. Diabetes mellitus gestational has been into global problems as seen from the number of occurrence and the impact thereof. This research aims to know the risk factors of diabetes incidence gestational in Clinics of Mangasa Makassar city 2017. Design research design used was descripted analytic with *cross sectional study.* This research was implemented in July until October 2017, with the number of samples of 68 respondents. On the research indicates bahwa no relation age of pregnant women with diabetes gestational with a value of p (1.00) > 0.05 and there is a significant relationship between family history of DM with Genesis Diabetes gestational with a value of p (0.00) < 0.05 and there is a significant relationship between history of hypertension with diabetes gestational the value (0.00) < p 0.05. It is recommended to do a screening of pregnant mothers in the early stages with blood sugar checks to improve maternal health especially during pregnancy to prevent complication that maybe only occurred during labor.

Keywords: Diabetes Mellitus, Hypertension, Gestational Risk Factors

INTRODUCTION

Diabetes mellitus gestational (DMG) is defined as glucose intolerance of any degree with onset or first recognition during pregnancy. (WHO-World Health Organization 2011). This applies either insulin or diet modification is only used for the treatment and whether or not the condition continues after pregnancy. This does not rule out the possibility that unrecognized glucose intolerance may have started simultaneously with the pregnancy.

This situation is common at the moment 24 weeks gestational age and most sufferers will be back to normal on after giving birth (Health RI, 2010). At almost half the figure of occurrence, diabetes will reappear (Nurrahmani, 2012). Diabetes mellitus gestational has been into global problems as seen from the number of occurrence and the impact thereof (Osgood, 2011).

According to *the American Diabetes Association* (ADA) in 2000, diabetes mellitus gestational 7% occurred in pregnancy each year. The prevalence of diabetes varied gestational is 1%-14%. This number depends on the population studied and the filtering criteria used (there, 2006). Diabetes mellitus gestational occurs around 4% of all pregnancies in the United States, and 3-5% in the United Kingdom (ADA, 2004). Prevalence of diabetes mellitus was in the European gestational of 2-6% (Buckley *et al.*, 2001).

The prevalence of pre diabetes in Indonesia in 2007 by 10% while the prevalence of diabetes mellitus gestational in Indonesia amounted to 1.9%-3.6% in pregnancy generally and about 40 – 60% of women have experienced DMG on advanced observations for 5 – 10 years post-delivery will evolve into DM (Soewardono and Pramono, 2011). In pregnant women with a family history of diabetes mellitus, prevalence of diabetes gestational

amounted to 5.1% (Maryunani, 2008). This figure is lower than the prevalence in the country Stations and United States. Nevertheless, the problem of diabetes gestational in Indonesia still needs serious handling see the number of sufferers is pretty much as well as the impact inflicted on a pregnant woman and the fetus.

Data obtained from South Sulawesi province health service year 2009 regarding routine disease surveillance is not contagious hospitalization have been reported from the hospital obtained the number of cases of diabetes mellitus gestational as many as 283 cases where prevalence of 0.1% (South Sulawesi Health Office, 2009).

Diabetes mellitus gestational become a public health problem because these diseases have a direct impact on the health of the mother and fetus (Osgood *et al*, 2011). The impact brought about by the mother of diabetics' mellitus gestational is the mother at high risk of excess weight gain occurs, the onset of preeclampsia, eclampsia, surgical, cardiovascular complications and caesarean to maternal deaths. After labor, then sufferers at risk of type 2 diabetes affected continuing or recurring gestational diabetes happens in 3 days to come. Whereas babies born from mothers who have experienced gestational with diabetes were at high risk for exposing makrosomia, birth trauma. In addition, babies exposed to high risk of hypoglycemia, hypocalcaemia, hiperbilirubinemia, respiratory disorders, polisitemia syndrome, obesity and diabetes mellitus type 2 (Perkins *et al*, 2007).

The numbers of pregnant women at Clinics Mangasa Makassar city in 2016 were as much of 864 pregnant women. Of that number, data of pregnant women who were exposed to risky DMG hasn't yet identified. In the Millennium Development Goals (MDGs) one point it aims to improve the health of the mother. With a screening of pregnant mothers in the early stages can be one way to improve the health of mothers especially during pregnancy sometimes only focused to many specific diseases such as hypertension and anemia, whereas for less DM get noticed unless the pregnant woman has been suffering from the disease of DM long before pregnancy. This is also one of the working programs of the American Diabetes Association (ADA) that appealed to every place health services antenatal care in particular to be able to do screening as early as possible to pregnant women to prevent probability complication only occurred during labor. This makes researchers interested in examining risk factors of Diabetes mellitus Occurrence gestational in Clinics Mangasa Makassar city The purpose of this research is to know the risk factors of diabetes incidence gestational in Clinics Mangasa Makassar city

RESEARCH METHOD

This type of research is used described with the draft analytical *cross sectional study,* to find out the relationship factor age pregnant women, family history of suffering from diabetes mellitus and hypertension with the occurrence diabetes mellitus gestational. The population in this research is the whole pregnant women visiting Clinics in Mangasa Makassar city in July to October 2017. The sample in this research is total population and sampling techniques are accidental sampling. The number of samples was as much as 68 respondents. This research was carried out in Clinics Mangasa Makassar city in May – October 2017 is the Government-owned Clinics.

RESULTS

This research takes place in the month of July to October 201 7 set in the region of clinics Mangasa Makassar city with the number of samples 68 people . After the data is collected, processed and analyzed the data further in Univariate and Bivariate, from research carried out the following research results presented:

General Characteristics of Respondents

Table1. *The characteristics of the General respondents in Clinics Mangasa, Makassar city 2017.*

Characteristics Of Respondents	n	%
Age (years)		
15 – 19	5	7.4
20 – 24	16	23.5
25 – 29	22	32.4
30 – 34	16	23.5
> 35	9	13.2
Tribe		
Bugis	3	4.4
Makassar	64	94.1
Other	1	1.5
Last education		
Master degree	1	1.5
Graduate Degree	8	11.7
Graduate Diploma	0	0
Finished High School	27	39.7
Finished junior high school	18	26.5
Completed elementary school	14	20.6
Jobs		
Government staff	2	3
Private Employees	9	13.2
House wife	57	83.8
The total number	60	100

Source: The primary Data sources: 2017

Based on table 1. the above shows that of the 68 respondents, the majority of respondents are in the range of 25 – 29 years of age i.e. as many as 22 respondents (32.4%), and a fraction in the range of 15 – 19 years by as much as 5 respondents (7.4%). Most respondents are Makassar i.e. 64 respondents (94.1%) and a small percentage of the respondents by tribal else (besides the Makassar and Bugis) i.e. 1 respondents (1.5%). Then on the level of education most respondents are on the level of finished high school as much as 27 respondents (39.7%) and magister degree as much as 1 respondent (1.2%). Furthermore the respondents who as a housewife as many as 57 respondents (83.8%) and respondents who were civil servants as much as 2 respondents (3%).

Univariate Analysis

Univariate Analysis in the current study aims to look at the frequency distribution of independent variables i.e. Factors of age, family history of pregnant women suffering from Diabetes mellitus and Hypertension. The dependent variable was high blood sugar levels while on pregnant women in the region of clinics Mangasa Makassar city.

Age of respondent

Table2. *Frequency Distribution Of Respondents Based On Age Of Respondent In Clinics Mangasa, City of Makassar 2017*

Age of respondent	The frequency of the	Percentage (%)
< 35 years	59	86.8
≥ 35 years	9	13.2
Total	**68**	**100**

Source: The Primary Data Sources: 2017

Based On Table 2. the above seen that among the 68 respondents most respondents in the age range 35-year as many < 59 respondents (86.8%), fraction of respondents in the span of age ≥ 35 years by as much as 9 respondents (13.2%).

A family history of Diabetes mellitus

Table3. *Frequency Distribution Of Respondents Based On A family history of Diabetes Mellitus, In Clinics Mangasa City of Makassar 2017.*

Family history of suffering from DM	f	(%)
There is no family history of DM	64	94.1
There is a family history of DM	4	5.9
Total	**68**	**100**

Source: The Primary Data Sources: 2017

Based on table 3. the above seen that among 68 respondents, there were 64 respondents (94.1%) that there is no family history of suffering from the DM and the rest is the respondent that there is a family history of suffering from DM 4 respondents (5.9%).

History of Hypertension

Table4. *Distribution The Frequency Of Respondents Based On A History Of Hypertension In Clinic Mangasa, City of Makassar 2017.*

Family history of suffering from DM	f	(%)
There is no history of hypertension	64	94.1
There is a history of hypertension	4	5.9
Total	**68**	**100**

Source: The Primary Data Sources: 2017

Based on table 4. the above seen that among 68 respondents, there were 64 respondents (94.1%) that there is no history of hypertension and the rest is the respondents that there is a history of hypertension by as much as 4 respondents (5.9%)

Diabetes Mellitus gestational (DMG)

Table5. *Frequency Distribution Of Respondents Based On Diabetes Mellitus gestational In Clinics Mangasa, City Makassar 2017*

Diabetes Mellitus Gestasional	f	(%)
Not at risk of DMG ≤ 125 mg/dl	64	94.1
Risky DMG ≥ 126 mg/dl	4	5.9
Total	**68**	**100**

Source: The Primary Data Sources: 2017

Based on table 5. the above seen that among the 68 respondents, there were 66 respondents (94.1%) are not at risk of DMG has a GDP of ≤ 125 mg/dl and the rest is respondents who are at risk of DMG has a GDP of ≥ 126 mg/dl 4 respondents (5.9%).

Bivariat Analysis

Table6. *Relationship between the distribution of Age of pregnant women with DMG In Clinics Mangasa, City of Makassar 2017.*

Age of pregnant women	Fasting Blood Sugar		Total	p
	≤ 125 mg/dl	≥ 126 mg/dl		
< 35 years	55	4	59	
≥ 35 years	9	0	9	1.00
Total	64	4	68	

Source: The Primary Data Sources: 2017

Based on table 6. the above seen that among the 68 respondents, aged 35 years < span which has a GDP of ≤ 125 mg/dl as much as 55 respondents and 4 respondents who have a GDP of ≥ 126 mg/dl. And the range of age ≥ 35 years which has a GDP of ≤ 125 mg/dl as much as 9 respondents and no respondents who have a GDP of ≥ 126 mg/dl. To assess the relationship age of pregnant women with diabetes gestational in the region of clinics Mangasa city of Makassar, bivariat analysis done by using statistical tests with *Chi-square*, with a 5% significance level (α: 0.05). The results showed b ahwa p value > 0.05 (1.00) which means that there is no relationship of age of pregnant women with diabetes incidence gestational.

Table7. *Relationship between the distribution of Family history of DM with DMG In Clinics Mangasa City of Makassar 2017.*

The DM Family History	Fasting Blood Sugar		Total	p
	≤ 125 mg/dl	≥ 126 mg/dl		
There is no family history of DM	64	0	64	
There is a family history of DM	0	4	4	0.00
Total	64	4	68	

Source: The Primary Data Sources: 2017

Based on table 7. the above seen that among the 68 respondents, that there is no family history of the DM has a GDP of ≤ 125 mg/dl as much as 64 respondents and no respondents who have a GDP of ≥ 126 mg/dl. And none of the respondents that there is a family history of the DM has a GDP of ≤ 125 mg/dl and there were 4 respondents who have a GDP of ≥ 126 mg/dl. To assess the relationship family history of DM with diabetes gestational in the region of clinics Mangasa city Makassar, bivariate analysis done by using statistical tests with Chi-square, with a 5% significance level (α: 0.05). The results showed b ahwa p value (0.00) < 0.05 which means that there is a significant relationship between family histories of DM with gestational diabetes events.

Table8. *Relationship between the distribution of History of hypertension with the Occurrence of DMG In Clinics Mangasa, City of Makassar 2017.*

History Of Hypertension	Fasting Blood Sugar		Total	*p*
	≤ 125 mg/dl	≥ 126 mg/dl		
There is no history of hypertension	64	0	64	
There is a history of hypertension	0	4	4	0.00
Total	64	4	68	

Source: The Primary Data Sources: 2017

Based on table 8. the above seen that among the 68 respondents, that there is no history of hypertension who have GDP ≤ 125 mg/dl as much as 64 respondents and no respondents who have a GDP of ≥ 126 mg/dl. And none of the respondents that there is a history of hypertension who have GDP ≤ 125 mg/dl and 4 respondents who have a GDP of ≥ 126 mg/dl. To assess the relationship history of hypertension with diabetes gestational in the region of clinics Mangasa city Makassar, bivariat analysis done by using statistical tests with *Chi-square*, with a 5% significance level (α: 0.05). The results showed b ahwa p value (0.00) < 0.05 which means that there is a significant relationship between histories of hypertension with diabetes incidence gestational.

DISCUSSION

The Relationship of Age of Pregnant Women with Diabetes Gestational

Not unlike diabetes gestational diabetes generally occurs when insufficient production of insulin to control glucose levels in the body during pregnancy. While pregnant, the placenta will produce the hormone estrogen, extras such as HPL (*human placental lactogen),* and hormones that increase insulin resistant. Often the passage of time, these hormones will increase and affect the performance of insulin.

The higher the influence of the hormone to insulin, blood sugar levels will rise and this increases the risk of getting the disease if it enters the age of 25 onwards when pregnant, have high blood pressure (hypertension), have a family with a history of diabetes, excess weight before getting pregnant (BMI above 25), had given birth to the baby above 4.5 kg, miscarried, have experienced gestational diabetes before.

From the results of statistical tests with *Chi-square*, with a 5% significance level (α: 0.05). The results showed that the p value > 0.05 which means that there is no relationship of age of pregnant women with diabetes incidence gestational. This is in accordance with which States that gestational diabetes can occur in pregnant women above 30 years of age (Sudoyo A, et.al, 2006). In this study the age of pregnant women in the age range 35-year < more and at this age range is less risky groups suffer from type 2 DM, due to an increased risk of diabetes along with age, especially at the age of more than 40 years, due to the age began an increase in glucose intolerance. The existence of the aging process causes a decreased ability of β cells in the pancreas produce insulin (Sujaya, 2009).

The Relationship between the a Family History of Diabetes with Dm Gestational

The results showed b ahwa p value (0.00) < 0.05 which means that there is a significant relationship between family histories of DM with gestational diabetes events. This is in line with the research of Share (2012), that there is a significant relationship Genesis DM with a history in the family. There are 22 (75.9%) of the respondents with the DM family history, the majority of respondents to the relationship with parents. Respondents who have families with DM should be wary. The risk of suffering a DM when one of his parents suffered from DM is of 15%. If both parents have the DM then the risk to suffer a DM is 75% (Diabetes UK, 2010). The risk to get a DM from a larger mother of 10 – 30% of fathers with the DM. This is due to decreased gene during content greater than the mother. If a sibling suffering from DM then the risk to suffer a DM is 10% and 90% if the suffering is an identical twin brother (Diabetes UK, 2010).

For the people that have families that suffer from DM, should immediately check his blood sugar levels because of the risk of suffering a great DM. Especially on pregnant mothers to prevent the occurrence of complications in case of diabetes gestational on the mother will happen: Abort spontaneously, premature labor, polihidramnion and infections. In addition on a fetus are also possible hypoglycemia, Hyperglycemia and makrosomia. And how to preserve it is to keep blood glucose levels within the normal range, low fat levels, exercise regularly, eat a balanced meal.

The Relationship between the Histories of Hypertension with the Occurrence of Diabetes Gestasional

The results showed b ahwa p value (0.00) < 0.05 which means that there is a significant relationship between histories of hypertension with diabetes incidence gestasional. Aligns research Share (2012), there is a meaningful relationship between diabetes mellitus with blood pressure. Results of the study showed that people who are exposed to greater risk of hypertension to suffer from diabetes, with 6.85 time's greater odds than people who are not of hypertension. Research according to Sunday (2009) found that individuals who experience hypertension risk 1.5 times more likely to have diabetes than individuals who are not of hypertension. Other studies have also suggested, people who have a history of hypertension are more exposed to the risk of type-2 DM compared to people who do not have a history of hypertension although statistically meaningless (Radio, 2011).

Some literature associate hypertension with insulin resistance. The influences of events hypertension diabetes mellitus is caused by a thickening of the arteries that lead to the diameter of the blood vessels become narrowed. This will cause the process of transport of glucose in the blood becomes distracted (Sieve, 2012). Hypertension in type 2 DM appeared simultaneously with or may even precede the appearance of diabetes. This is caused in people with hypertension often found the presence of a bunch of other abnormalities such as central obesity, other, hiperurisemi and hiperinsulinemia/insulin resistance or now called metabolic syndrome. This is in accordance with previous research in America shows that individuals with hypertension 2.5 times more often experience a type-2 DM than normotensi.

So on pregnant women who have a history of hypertension in order to always diligently checked the blood pressure and attempts to do the prevention of hypertension hypertension due to complications so that could have been prevented as early as possible.

CONCLUSION

As for the conclusions of this research as follows:

1. There is no relationship of age of pregnant women with diabetes gestasional in Clinics Mangasa Makassar city to the value of p (1.00) > 0.05.

2. There is a significant relationship between family histories of DM with diabetes gestasional in Clinics Mangasa Makassar city p-value < 0.05 (0.00).

3. There is a significant relationship between history of hypertension with diabetes gestasional in Clinics Mangasa Makassar city p value (0.00) < 0.05.

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