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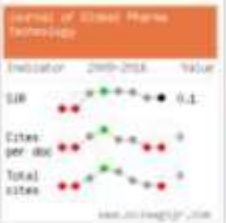

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RESEARCH ARTICLE

Prevalence of Pregnant Women with Anemia in Sangkan Gunung Village, Karangasem Regency, Bali-Indonesia

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Abstract

Pregnant women are one of the groups with the risk of having anemia. Some factors that are correlated to anemia is aninfectious disease, bleeding, and low iron daily intake.These factors were related to the knowledge level of pregnant women and iron supplementation compliance. This is a cross-sectional study with descriptive methods, where 34 pregnant women were chosen by consecutive sampling method.Anemia wasthen measured by sahli method, and hemoglobin level < 11 g/dl were categories asanemia. The results were analyzed with univariate and bivariate analysis using SPSS 23.Anemia in pregnant women at Sangkan Gunung village, Sidemen sub-district is20,6%. Most anemia incidents were found in 20-35 years old pregnant women, with low education level, work at the office, zero parity, and in afirst trimester. Anemia was not associated with chronic energy deficiency, knowledge level and iron supplementation compliance level (P>0,05). Anemia prevalence of pregnant women was relatively low, but the preventive effort must be taken to decrease therate of anemia prevalence.

Keywords: *Knowledge, Compliance, Iron tablets, Pregnant women, Anemia.*

Introduction

Anemia is a condition where an erythrocyte or circulating hemoglobin mass cannot fulfill its function to transport oxygen to the tissues. Anemia in pregnancy can adversely affect the mothers such as abortion; andaffect the product of conceptions such as mortality, perinatal death, premature birth, congenital defects, and deficiency of iron reserves. Thereby, increasing maternal and fetal mortality and morbidity.[1]

Anemia in pregnant women often occurs because of the doubling in iron demand due to an increase in blood volume without plasma volume expansion to fulfill the needs of the mother (preventing blood loss at delivery) and fetal growth.[2]Therefore, it is important to check hemoglobin levels during the first visit of pregnancy, so prevention and treatment can be done as soon as possible.[1]

The incidence of anemia is reportedly varied. According to WHO in 2005, 34% of pregnant women reported with anemia, where 75% of them were in developing countries.[3]In Indonesia, 63.5% of pregnant women is suffering from anemia. While in Bali, 46,2% of pregnant women is suffering from anemia.[4]

Examination of hemoglobin levelsis recommended in the first and third trimesters of pregnancy, the examination often only in the third trimester because of most of pregnant women check for pregnancy in the second trimester so that the treatment of anemiawill be delayed with complications that may occur. Anemia criteria that used according to WHO criteria that is<11 gr%.[1]

The Government of Indonesia has sought the prevention of anemia through a Fe supplement program of 90 tablets during pregnancy. But there are still many pregnant women who refused or did not obey to this recommendation with various reasons so that the prevalence of anemia in pregnant women is still high. A mother is called obediently taking a tablet of Fe when ≥ 90% of the iron tablets are supposed to be drunk.

Riskesdasin 2010 results shows that 80,7% of women that age 10-59 years who get/buy Fe tablets, there are still 19.3% of them who do not drink Fe tablets, and only 18.0% are taking Fe tablets in 90 days or more. Based on the results of the initial survey as much as 15.3% of pregnant women answered that do not know about the benefits of iron tablets. And as much as 36.3% claimed to consume iron tablets between 0-30 days.[1]

The behavior of pregnant women in consuming iron tablets is influenced by predisposition factors, such as knowledge, enabling factors including the availability of health facilities and reinforcing factors including family or husband support, as well as health workers. Husband involvement from the beginning is very useful, so that pregnant women emotionally feel calm and confident, especially if the family also expects the pregnancy. Pregnant women will feel more confident and happier during the pregnancy.

Based on the Sidemen Public Health Center report, it found that the distribution of Fe tablets was good enough, that is 91.3% of pregnant women, although there was anemia incidence of 4.1%. This research is aimed to know the incidence of pregnant women with anemia in working area of Sidemen Public Health Center in Katangese regency.

Methods

This research used descriptive cross-sectional design with research subject is pregnant women who live in Sangkan Gunung village.

This village was chosen because this village has the highest number of pregnant women in Sidemen Sub-district. Furthermore, all pregnant women are visited in their house for measurements and interviews. This study only involved pregnant women who were found at home visits. A total of 34 pregnant women were involved as the participant in the study.

Data were collected through observation and interview. Anemia status was obtained through examination of hemoglobin level and anemia criteria determined if hemoglobin level is <11g%. Anemia risk factor description was obtained through interview. The result data were analyzed by univariate and bivariate methods.

Results

Most pregnant women between the age of 20-35 years (73.5%) that have senior high school education level is about 50%, 44,1% of subject occupational is laborer/farmer. When seen from the number of children, most of the pregnant women have children as much as one child (50%) and pregnant women with the second trimester of pregnancy are about 64.7%. A complete frequency distribution of pregnant women characteristics shown in Table 1.

Table 1: Frequency distribution of pregnant women characteristics

Characteristic	Frequency	%
Age (years)		
≤ 20	3	8,8
20-35	25	73,5
≥ 35	6	15,7
Education		
Elementary School	4	11,8
Junior High School	8	23,5
Senior High School	17	50,0
College	5	14,7
Occupations		
Seller	9	26,5
Laborer/farmer	15	44,1
Enterpreneur	1	2,9
Employee	8	23,6
Civil servant	1	2,9
Parity		
0	10	29,4
1	17	50,0
2	7	20,6
Age of pregnancy		
Trimester I	9	26,5
Trimester II	22	64,7
Trimester III	3	8,8

Table 2 illustrates the incidence of anemia in pregnant women as many as 20.6%. An estimated that 11.8% of pregnant women found with a chronic energy deficiency (CED). Based on the knowledge level of mothers, most of them have a high level of knowledge about the benefits of iron (58.8%) and high level of compliance about consuming iron tablets (55.9%). More fully illustrated in Table 2.

Table 2: Frequency distribution of anemia status, CED, level of knowledge and compliance about iron tablet consumption in pregnant women

Variable	Frequency	%
Anemia Status		
Anemia	7	20,6
Normal	27	79,4
CED Status		
CED	4	11,8
Not CED	30	88,2
Level of Knowledge		
High	14	41,2
Moderate	19	55,9
Low	1	2,9
Level of Complience		
Obedient	14	41,2
Not obey	20	58,8

Pregnant women with anemia were more prevalent in women with age group of 20-35 years (24.0%), low education level (50.0%), work in an office (20.6%), parity 0 (30.0%) and the age of pregnancy of first trimesters many as 42,9%. However, the difference in the incidence of anemia was not statistically significant with P> 0.05 (Table 3).

Table 3: Cross tabulation of anemia prevalent by age factor, educational level, occupation, parity and age of pregnancy

Variable		Anemia Status				P
		Yes		No		
		N = 7	%	N =27	%	
Age	≤ 20	0	0	3	100	0,205
	20-35	7	24,0	18	76,0	
	≥ 35	0	0	6	100	
Educational level	High	1	20,0	4	80,0	0,458
	Moderate	5	20,0	20	80,0	
	Low	2	50,0	2	50,0	
Occupation	Employee	1	11,1	8	88,9	0,412
	Not employee	6	20,6	19	79,4	
Parity	0	3	30,0	7	70,0	0,294
	1	4	23,5	13	10	
	2	0	14,3	7	17	
Age of pregnancy	Trimester I	3	42,9	4	57,1	0,417
	Trimester II	4	17,4	19	82,6	
	Trimester III	0	0	4	100	

Chi-square test results showed that anemia was not related to CED occurrence, knowledge level and compliance level of pregnant women about iron tablet consumption (P> 0,05). Nevertheless, pregnant women with anemia tend to have CED, have a high level of knowledge, and obedient to consume iron tablets. The full figureis shown in Table 4.

Table 4: The relationship between anemia status with CED status, knowledge level and compliance level of iron tablet consumption in pregnant women

Variable		Anemia Status				P
		Yes		No		
		N = 7	%	N =27	%	
CED	CED	2	50.0	2	50.0	0.180
	Not CED	5	20.0	25	80.0	
Level of Knowledge	High	4	28.6	10	71.4	
	Moderate	3	15.8	16	84.2	0.585
	Low	0	0	1	100	
Level of Complence	Obedient	3	26.7	11	73.3	0.622
	Not obey	4	21.1	16	78.9	

Discussions

The incidence rate of pregnant women with anemia in SangkanGunung village Sidemen sub-district is 20.6%. Globally the prevalence of anemia in pregnant women around the world is 41.8%.[5]While in Asia, the incidence of anemia in pregnant women is estimated at 48.2%, Africa by 57.1%, America by 24.1%, and Europe by 25.1%.[6]

Based on the results of Basic Health Research (*Riskesdas*) in 2013, the prevalence of pregnant women with anemia in Indonesia as many as to 37.1%.[7]Thus the incidence of anemia in Sangkan Gunung Village is relatively lower than the incidence of anemia in Indonesia as well as in the world.

It is possible because there is a different number of samples that used in the study and the methods that used to diagnose anemia. In this study, the method used is asahli method, where the number of subjectivity results is relatively higher compared with other hemoglobin level examination methods.

The need for body iron increases during growth and pregnancy period. Iron is needed during pregnancy for infants, placentas and an increase in the number of red blood cells. The total requirement of iron during pregnancy is about 1000 mg. If the iron reserves are empty, then the total iron requirement during pregnancy must be fulfilled from diet and supplementation.

In the first trimester of pregnancy does not require iron supplementation for pregnant women, fetus, and placenta. The need for iron at this time is usually lower than non-pregnant women due to low erythropoietic activity. In second trimester pregnancy, iron requirements are higher and will continue to increase until the end of pregnancy.[8]

Increased iron body requirements also occur in the pre-pregnant period due to increased erythropoietic activity. The menstrual cycle experienced by pre-pregnant women results in an additional iron loss of about 1,4 mg per day. To maintain the iron balance of the body, they need iron intake either through food or supplementation. If iron intake cannot be fulfilled, then there will be themobilization of body iron reserves.[8] So that will be body iron depletion, iron reservesemptiness and even experiencing iron deficiency anemia (IDA).[2]

Another thing that does not support the iron intake to be fulfilledis the condition where most of the people who live in the countryside including in Bali Province, usually consume unbalanced or less varied food. Monotone diet tends to cause deficiency and excess of certain nutrients because each food source contains a variety of types and quantities of certain nutrients.

Foodstuffs from vegetables contain more types of non-hem iron. Non-hem iron requires an introduction to increase iron absorption, and it is unable to fulfill the iron requirements of the population. The average body iron intake in tropical countries is 12-19 mg/day and in Latin America is 15-40 mg/day. But in Indonesia, the average intake is less than the need for body iron.[3]

Prevention of anemia and/or IDA through supplementation of iron and folic acid tablets during pregnancy results in compliance issues.[9,10] In this study it was found that anemia in pregnant women was more commonly found in mothers who adhere to iron tablets of 26.7%. The study of adherence in iron tablet supplementation is reportedly varied from 25% to 90% depending on

surveillance. The stricter the supervision, the higher the compliance of pregnant women in consuming iron tablets.

Adverse effects of supplementation that reported include nausea, vomiting, chest burn, constipation, diarrhea and shortness of breath.[11]

This condition becomes more severe than usual when associated with morning sickness syndrome. Although it can be overcome with anti-nausea, there are still 25% of pregnant women unable to continue supplementation until the prescribed time.[12]When viewed from the age of pregnancy, pregnant women with anemia are more common in mothers with the age of the first trimester as many as 42.9%.

In general, pregnant women will experience morning sickness syndrome at the age of pregnancy of trimester I. Nutritional intake tends to be lower than the trimesters II and III. Even iron supplements at this time can also aggravate complaints, so compliance with iron and/or other supplements is also impaired. Based on this, it would be better if pre-pregnant women set up body iron reserves according to the needs of pregnant women through daily iron diet and supplementation and keep iron metabolism in balance. Pre-pregnant women have more opportunities to fulfill the needs of body iron compared to pregnant women. Whereas iron deficiency and/or anemia occur in women who are pregnant, it is unlikely that the condition will not change until the end of pregnancy due to increased iron demand in each trimester of pregnancy, as well as adherence to iron tablet supplementation. Also, although still requires further study, the negative effects of anemia may be in pregnant women with iron deficiency and/or anemia that occur in early to late pregnancy.

Based on this, an evaluation of anemia status in the pre-pregnant period is needed to provide a longer chance of improving the body's iron status so that anemia does not occur during pregnancy.

Conclusions

The incidence of pregnant women with anemia in Sangkan Gunung village Sidemen sub-district is 20.6%. Pregnant women with anemia tend to be found in mothers of 20-35 years of age, low level of education, work in the office, zero parity and age of the first trimester. Anemia in pregnant women was not correlated with CED occurrence, knowledge level and compliance level of pregnant women about iron tablet consumption (P> 0, 05). Nevertheless, pregnant women with anemia tend to be found in mothers with CED, high knowledge level, and obedient consuming iron tablet.

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