

ANALYSIS OF THE
FACTORS HYPERGLYCEMIA
AMONG PATIENTS WITH
DIABETES
MELLITUS WHO SETAKING ORAL
HYPOGLYCEMIA DRUGS (OHD)

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**ANALYSIS OF THE FACTORSHYPERGLYCEMIA AMONG PATIENTS
WITH DIABETES MELLITUSWHOSETAKING ORAL
HYPOGLYCEMIA DRUGS (OHD)**

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ABSTRACT

Hyperglycemia in Diabetes Mellitus (DM) patients can be caused by fear, anger, anxiety, fever, flu, infections and other illnesses that causes of stress. Hyperglycemia in DM patients that already taking the medicine can be caused by irregularity of regular diet, irregularity in exercises, irregularity taking medicine, and irregularity checking level of blood glucose. Incidence of hyperglycemia is 33% especially at people age over 60 years old. The goals of this research were to analyze the factors related with hyperglycemia among Diabetes mellitus (DM) patients that taking oral hypoglycemia Drugs (OHD). Design research was *cross sectional*. The population of the research was the members of DM club in Adventist Hospital in Bandar Lampung. Sample were the members of the Club who taking OHD, total 40 respondent, the methods sampling was *purposive sampling*. The time of research was September, 21th – October, 5th 2014. The research results described that the factors related to hyperglycemia among patients whose taking OHD are age ($\alpha=0.002$), anxiety ($\alpha=0.006$), obedient to diet ($\alpha=0.02$), regularity of exercise ($\alpha=0,014$), regularity of taking medicines ($\alpha=0.007$), and knowledge of treatment ($\alpha=0.001$). The relationship between hyperglycemia among DM patients that taking OHD with age, anxiety, regularity of exercise, regularity of taking medicines, obedient of diet and the knowledge of treatment should be contribute to manager of DM club for the prevalence of the occurrence of hyperglycemia among patient with oral hypoglycemia Drugs (OHD).

Keywords :Hyperglycemia, DM with OHD

Introduction

The pandemic of Diabetes mellitus (DM), especially DM type 2 (DMT2) has now become a serious threat to the human race in the world. In 2003, the WHO estimates that 194 million or 5.1% from 3.8 billion world population aged 20 to 79 years old suffer from DM and in 2025 increase to 333 million. The same year *the International Diabetes*

Federation (IDF) mentions that the prevalence of DM was 1.9% in the world and cause 7th of the death. Projection DM prevalence from 1994 to 2010 was estimated 215,6 million, however evaluation in 2007 of the number of diabetics has reached 246 million, even in 2025, people fear that number would increase to more than 300 million people.

Basic Health Research (BHR) reported by the Department of Health in 2007, showed the average prevalence of DM in Indonesia was 5.7%, while in the province of Lampung amounted to 6.2%. The number was above the national average, meaning that many people with DM in Lampung Province. According to the WHO state, diabetes patients in Indonesia will increase from 8.4 million in 2000 and to 21.3 million people by 2030. This makes the numbers in Indonesia ranked 4th in the world after China, India and the United States (Soegondo, dkk, 2011).

DM patients potentially suffering from various complications, including microvascular disease and macrovascular disease. The complications of DM start early, before we realize the diagnosis of DM. About 50% of patients when diagnosed, already have chronic complications like 21% of retinopathy, 18% abnormally of ECG and 14% with impaired blood flow to the legs, making the pulse not palpable or making ischemic at leg. DM complications will decrease expectancy of the life around 15 years, and 75% died of complications due to macrovascular. In addition to the issue of complications, other problems faced by diabetes patients are high costs of treatment and maintenance good health. Hartini reported, the cost of care for DM patients. In developed country like United States in 2011, the total health budget spent \$ 174 billion or around IDR. 1.641 trillion to 25.8 million residents afflicted by diabetes. WHO estimates most countries in worldwide spend 2.5-15 percent of health budgets for the

diabetic people. In Indonesia, it hasn't study that calculates the total spending costs for treatment diabetic. But for instance, the diabetes patients who have haemodialysis 3 times in a week, if in every hemodialysis, they must pay Rp. 800.000, so they can spend money totally Rp. 115.200.000 for one year. This cost does not include the cost of complications, indirect costs such as travel expenses, loss of working hours, due to a disability and other expenses incurred by the family. Research Of *ROSSO (Retrospective Study Self Monitoring of Blood Glucose and learning outcomes in People with type 2 Diabetes)* in Germany 2006 by Weber, known diabetes expenses by patients, more and more year increase adjustment to the increasing of complications. The first year after the diabetic patient diagnosed, they spend costs IDR 18,3 million in a year, up to IDR 49,1 million in the eighth. (<http://health.detik.com>).

The effort to avoid complications and expensive we need integrated treatment or management of diabetes that called the pillars of management of diabetes. The four pillars of diabetes mellitus treatment are 1) diet, 2) physical exercise, 3) pharmacology or drug use and 4) education. The goals of management diabetes mellitus are to support patients live in minimal risks of complications or without risks with specific targets on goal like blood glucose, fat and weight.

Management of DM without decompensation starts with diet, good exercises in 4-8 weeks. If in this period, blood glucose levels higher than normal, we give Oral Hypoglycemic Medication given new (OHD). Recorded only 5% of

patients reached normoglycemia with diet and exercises, 95% did not give satisfactory results so it can be started with using OHD. In people with severe hyperglycemia, OHD should be initiated early.

Hyperglycemia is determined by 3 factors include of pancreatic beta cells that are secreting insulin. *Hepatic glucose output* (produces liver glucose) by liver and sensitivity of peripheral tissues (muscles, intestines and liver) to insulin. Oral hypoglycemic medications have points to work on to one or more of the three factors above.

Definition of hyperglycemia based on the criterias of diabetes mellitus are issued by *International Society for Pediatrics and Adolescent Diabetes (ISPAD)* is the levels of glucose blood when ≥ 11.1 mmol/L (200 mg/dL) with diabetes symptoms or levels of glucose blood fasting (no caloric input getting at least 8 hours in advance) ≥ 7.0 mmol/L (126 mg/dL). Another definition of hyperglycemia, according to *the World Health Organization (WHO)* is the levels of glucose blood ≥ 126 mg/dL (7.0 mmol/L), where the levels of glucose in blood between 100 and 126 mg/dL (6.1 to 7.0 mmol/L) is said the condition of abnormal glucose tolerance (Soegondo. dkk, 2011).

Hyperglycemia in DM patients can be caused by fear, anger, anxiety, fever, flu, infections and other illnesses the causes of stress and increasing blood glucose.

Hyperglycemia in DM patients with already taking the drug due to 1) in consuming, 2) irregularity in exercises, 3) irregularity in the use of drug, 4) irregularity in checking

the levels of glucose in the blood (Soegondo, n.d).

The incidence of Hyperglycemia, 33% is a mix between Diabetic Ketoacidosis (KAD) and the Status of Hiperosmolar Hiperglycemic (SHH) and one third 1/3 of them that mix between KAD and SHH, are over 60 years old.

Pra Surveyin Dr. Abdul Moeloek Hospitals, since January-August 2013, recorded 96 patients suffering diabetes mellitus who currently using OHD and estimated there are still approximately 38% - 40% of patients that the level of glucose blood above 200 mg/dL. Based on this phenomena, researchers interested study the determinan factors related to hyperglycemia in patients who are already using DM OHD.

Literature Review

Hyperglycemia according to *International Society for Pediatrics and Adolescent Diabetes (ISPAD)* is ≥ 11.1 mmol of the level of glucose blood (200 mg/dL), with the symptoms of diabetes while fasting (no caloric input getting at least 8 hours in advance) ≥ 7.0 mmol/L (126 mg/dL). Another definition of hyperglycemia, according to *the World Health Organization (WHO)* is the level of glucose blood ≥ 126 mg/dL (7.0 mmol/L), and the level of glucose blood between 100 - 126 mg/dL (6.1 to 7.0 mmol/L) is a condition of abnormal glucose tolerance.

Hyperglycemia in DM patients can be caused by fear, anger, anxiety, fever, flu, infections and other illnesses the causes of stress and increasing blood glucose. Hyperglycemia in DM patients with

already taking the drug due to 1) in consuming, 2) irregularity in exercises, 3) irregularity in the use of drug, 4) irregularity in checking the levels of glucose in the blood (Soegondo, n.d).

The incidence of Hyperglycemia, 33% is a mix between Diabetic Ketoacidosis (KAD) and the Status of Hiperosmolar Hiperglycemic (SHH) and one third of them that mix between KAD and SHH, are over 60 years old.

DM patients Hyperglycemia can be caused by fear, anger, anxiety, fever, flu, infections and other illnesses the causes of stress. Hiperglykemia on pasien DM is already taking the drug due to 1) not had in regulating food, 2) irregular in the workout, 3) irregular in the use of the drug, 4) irregular in the examination of the levels of glucose in the blood (Soegondo. n.d). 33% of Hyperglycemia is a mix between Diabetic Ketoacidosis (KAD) and the Status of Hiperosmolar Hiperglykemik (SHH) and 1/3 of them who are over 60 years old.

Mihardja (2009) in his research concluded the age > 55 years have risks of hyperglycemia 6,7 times, the age 35-54 years old have risks 4.5 times compared to the age of 15 – 34 years old. Hiperglycemia more risk in age > 55 year old tahun, because more aging, insulin produce decrease in pancreas. This study, showed that we must protective the older people especially the age > 55 year old by complicated of Diabetes Mellitus.

Methodology

Design research was *cross sectional*, the population in this research were all Club members of DM Bandar Lampung Adventist

Hospitals, 120 people. The samples were the members of DM Club in Bandar Lampung Adventist Hospitals, that already using the OHD, totally 40 respondent. The samples were taken with *purposive sampling* methods with criteria 1) type II DM, 2) not accompanied by complications, 3) not currently suffer from other diseases, and 4) not being use another lowering glucose blood levels drug like herbals. Time of research on September 21th – October 5th 2014 every Sunday at DM Club of Bandar Lampung Adventist Hospitals.

The instruments used questionnaire for independent variable which developed by the researcher, food recall sheet for diet, and for variable of anxiety, we are adopt tools measure from HARS (*Hamilton Anxiety Rating Scale*). For dependent variable, we used results of glucose measurement sheet. Instruments for assessing knowledge of the respondents, developed by researchers. The total scoring on instrument is 10, we given score 1 for the correct answer and 0 for the wrong answers. The respondents stated having good knowledge when the respondents got the score ≥ 7 and have less knowledge when the score < 7 .

In this study, the univariate data will be analyzed by distribution frequency and bivariate data with *chi square*.

Results And Discussion

Univariate Analysis

This research was conducted on the DM Club of Bandar Lampung Adventist Hospital, every Sunday on the 21th, 28th of September and 5th of October 2014. Actually the member totally 120 people, but the active

people only ± 90 respondent and already using DM OHD only 40 people.

Results of research conducted on respondents obtained data include age, levels of anxiety, the regularity of exercises, obedient of diet, regularity of medication management and knowledge of the management DM. Univariate analysis in tables:

Table 1: Distribution frequency of Age

Category	n	%
≥ 60 years	30	75.0
< 60 years	10	25.0
Total	40	100.0

Table 1, the most respondents aged were above or equal 60 years old, 30 respondents, (75%)

Table 2: Distribution frequency of Level of anxiety

Category	n	%
Anxious	26	65.0
Not Anxious	14	35.0
Total	40	100.0

Table 2, majority of respondents experiencing anxiety as 26 (65%) of respondents.

Table 3: Distribution frequency of level of Compliance Diet Calories

Category	n	%
Excess	23	57.5
As needed	17	42.5
Total	40	100.0

Table 3, the most respondents have habit consume excess calorie, as 23 (57,5%) of respondents

Table 4: Distribution frequency of Regularity of Exercises

Category	n	%
Irregular	21	52.5
Regular	19	47.5
Total	40	100.0

Table 4, the most respondents have habitirregular in exercises, as 21 (52.5%) of respondents.

Table 5: Distribution frequency of Repondents Using Reguler OHD

Category	n	%
Irregular	32	80.0
Reguler	8	20.0
Total	40	100.0

Table 5 The most respondents have habit using OHD irregular, as 32 (80%) of the respondents.

Table 6: Distribution frequency of Level of knowledge DM management

Category	n	%
Less	30	75.0
Good	10	25.0
Total	40	100.0

Table 6, The most respondents have less knowledge of DM management, 30 (75%) of the respondents.

Table 7: Distribution frequency of level of glucose blood

Category	The amount of	%
Hyperglycemia	25	62.5
Normoglicemia	15	37.5
Total	40	100.0

Table 7 The most respondents have hyperglycemia, as 25% (62.5%) of the respondents.

Bivariat Analysis

The bivariat analysis used in this study was the analysis of *chi square*, to find out the relation of variable risk factors with the occurrence hyperglycemia in patients of diabetes mellitus that already using OHD.

a) The relationship between Age and Hyperglycemia among DM patient already taking OHD

Table 8: distribution of Respondents By age and Hyperglycemia

The age of	Hyperglycemia				Total		P Value	OR
	Yes		Not		n	%		
	n	%	n	%				
≥ 60 years	23	76.7	7	23.3	30	100	0.002	13,143 (2,249 – 76,807)
< 60 years	2	20	8	80	10	100		
The amount of	25	62.5	15	37.5	40	100		

Table 8 analysis results described, there were 23 (76,7%) of respondents that age ≥ 60 years experience hyperglycemia, and there were 2 (20%) of respondents aged < 60 years experience hyperglycemia. Results of statistical tests obtained p value = 0.002 was smaller than the value of $\alpha = 0.05$ (p value < α), which means that there were differences in the proportion of

respondents aged between hyperglycemia incidence ≥ 60 years with respondents aged < 60 years (there was significant relationship between age and incidence of hyperglycemia). Analysis results were also obtained the value OR 13,14, meaning respondents aged ≥ 60 years of age had a risk 13,14 times to experience hyperglycemia than respondents aged < 60 years.

b) Relationship between the anxiety with Hyperglycemia in Diabetisi already Using OHD

Table 9: Distribution of Respondents By level of anxiety and Hyperglycemia

The Level Of Anxiety	Hyperglycemia				Total		P Value	OR
	Yes		Not		n	%		
	n	%	n	%				
Anxious	21	77,8	6	22,2	27	100	0.006	7,875 (1.78 – 34,83)
Not be anxious	4	30,8	9	69,2	13	100		
The amount of	25	62,5	15	37,5	40	100		

Table 9 analysis results showed that there were 21 (77.8%) of the respondents experiencing anxiety also experienced hyperglycemia, and there were 4 (30,8%) of respondents who did not experience the anxiety but experienced hyperglycemia.

Results of statistical tests obtained p value = 0.006 was smaller than the value of $\alpha = 0.05$ ($p < \alpha$ value), meaning that there was differences between the proportion

of respondents that hyperglycemia incident experienced anxiety with respondents who did not experience anxiety (there was significant relationship between anxiety level with incidence of hyperglycemia). Analysis results are also obtained the value OR 7, 875 meaning respondents who have anxiety have 7,875 times risk for experiencing hyperglycemia than from the respondents that did not.

b) Relationship between Compliance Diit with Hyperglycemia in Diabetisi already Using OHD

Table 10 Distribution of Respondents By level of Compliance Diet and Hyperglycemia

Calorie Level	Hyperglycemia				Total		P Value	OR
	Yes		Not		n	%		
	n	%	n	%				
Excess	19	79,2	5	20,8	24	100	0.02	6,33 (1.5-26)
As needed	6	37,5	10	62,5	16	100		
The amount of	25	62,5	15	37,5	40	100		

Table 10 analysis results described that there were 19 (79.2 %) of respondents who have habit consume excess calorie also experienced hyperglycemia, and

there were 6 (37.5%) of respondents who have habit of calorie consumption according to needs but experience hyperglycemia.

Results of statistical tests obtained p value = 0.02 was smaller than the value of $\alpha = 0.05$ (p value < α), which means that there was differences between the proportion of events with hyperglycemia respondent who have habit consume excess calorie with respondents who had habit of consumption as needed (there was significant relationship

between the level of consumption of calories with the incidence of hyperglycemia). Analysis results were also obtained the value OR 6,33, meaning that respondents have 6,33 habit of excess calorie consumption has 6,33 times risk for experiencing the hyperglycemia than respondents have habit consumecalorie as needed.

c) The relationship between Sports Activity Regularity with Hyperglycemia among DM Patients already taking OHD

Table 11 Distribution of Respondents By level of Order activity and Hyperglycemia

Rate Exercises	Hyperglycemia				Total		P Value	OR
	Yes		Not		n	%		
	n	%	n	%				
Irregular	18	81,8	4	18,2	22	100	0,014	7,07 (1.67 – 29.82)
Regular	7	38,9	11	61,1	18	100		
The amount of	25	62.5	15	37.5	40	100		

Table 11 analysis results described that there were 18 (81,8%) of respondents who have irregular habit of activity, sport or excercises experience hyperglycemia, and there were 7 (38.9%) of respondents having regular excercises experienced hyperglycemia.

Results of statistical tests obtained p value = 0,014 was smaller than the value of $\alpha = 0.05$ (p value < α), which means that there was differences between the proportions of respondent irregular excerciseswith

hyperglycemia with respondents who have habit of regular exercises or activity (there was significant relationship between habitual activity or sport with events of hyperglycemia). Analysis results were also obtained the value OR meaning that respondents have 7,07 habitual activity or irregular sport has risks 7,07 times to experience hyperglycemia from the respondents who have habit of activity or sport on a regular basis.

d)The relations between Regularconsumption OHD with Hyperglycemia among DM patients already taking OHD

Table 12 Distribution of Respondents By degree of consumption OHD and Hyperglycemia

Consumption of OHD	Hyperglycemia				Total		P Value	OR
	Yes		Not		n	%		
	n	%	n	%				
Irregular	24	72,7	9	27,3	33	100	0.007	16 (1.68-152)
Regular	1	14.3	6	85,7	7	100		
The amount of	25	62.5	15	37.5	40	100		

Table 12 analysis results described that there were 24 (72,7 %) of respondents who have habitirregularconsumption OHD, experienced hyperglycemia, and there was 1 (14.3%) of respondents who have habit of consumption OHD regular but experienced hyperglycemia.

Results of statistical tests obtained p value = 0.007 was smaller than the value of $\alpha = 0.05$ (p value < α), which means that there differences between the proportion

of events with hyperglycemia respondent irregular consumption OHDwith respondents who have habit regular consumption of OHD (there was significant relationship between consumption habits OHD with hyperglycemia). Analysis results were also obtained the value OR16, meaning respondents who have irregular OHD consumption habits have 16 times to experience the risks of hyperglycemia than respondents who have habit of regular consumption of OHD.

e) The relationship between the knowledge of DM Management with Hyperglycemia among DM patients already taking OHD

Table 13 Distribution of Respondents By level of Knowledge Management DM and Hyperglycemia

Knowledge	Hyperglycemia				Total		P Value	OR
	Yes		Not		n	%		
	n	%	n	%				
Less	24	77,4	7	22.6	31	100	0.001	27.4 (2.9 – 258)
Good	1	11.1	8	88,9	9	100		
The amount of	25	62.5	15	37.5	40	100		

Table 13, Analysis results described that there were 24 (77,4%) of respondents who have less knowledge about the DM management experienced hyperglycemia, and there was 1 (11.1%) of respondents who have good level of knowledge but experience hyperglycemia.

Results of statistical tests obtained p value = 0.001 was smaller than the value of $\alpha = 0.05$ (p value < α), which means that there was differences between the proportion of events with hyperglycemia respondents with less knowledge with respondent whohave good knowledge (there was significant

relationship between knowledge management knowledge of DM with hyperglycemia). Analysis results were also obtained the value OR27.4, meaning that respondents have less knowledge about risk management, DM 27.4 times to experience hyperglycemia than respondents who have good level of knowledge.

Discussion

1. The relationship between Age and Hiperglycemia in Diabetisi already Using OHD

Results of statistical tests showed there were differences proportions of aged respondents hyperglycemia incidence between ≥ 60 years with respondents age < 60 years (there is a significant relationship between age and incidence of hyperglycemia).

The levels of glucose blood increase with arising of aged for the five decaded later. Frequency increases with the increase of age, approximately 10%-30% of the 60 years.

This was similar with results of Mihardjas study, which said that age > 60 years old have the opportunity to experience the hyperglycemia's 6.7 times in compare middle age. This can occur because at age > 55 years, production of insulin by the pancreas decrease very drastic. In addition, age > 60 years old going on insulin resistance which is very significant.

2. The relationship between the anxiety with Hyperglycemia among DM patient already taking OHD

Results of statistical tests were obtained there was difference proportion between the hyperglycemia respondents with experienced anxiety with respondents who did not experience anxiety (there was significant relationship between anxiety level with incidence of hyperglycemia).

Soegondo, *et al* (2011), hyperglycemia in patients with DM can be caused by many factors as fear, anger, anxiety, fever, flu, infections and other illness that can cause stress and increase levels of glucose blood.

Anxiety or stress will cause the beta cells in pancreas fails to produce insulin or obstructed. At condition of stress is generally increase hormones glucagon and formation of glucose will be increased but the using of glucose in the peripheral level was decrease, which triggered hyperglycemia.

3. The relationship between obedient of diet with Hyperglycemia among patient DM already taking OHD

Results of statistical tests were obtained there was difference proportion hyperglycemia respondents with excess calorie consumption with respondents who had habit consume calorie as needed (there was significant relationship between the level of consumption of calories with the incidence of hyperglycemia).

The consumption of calories from carbohydrates will produce glucose which will be used by the body to produce energy. In people with type II DM going decline in insulin production, excessive calorie consumption will be increasingly overload the body with no using

glucose formed into energy, so that the body's glucose levels would be increased (Sugondo, 2011).

Calorie needs in people with DM were sourced from carbohydrates should only 60-70% of total calories. In addition, the need for calories in people with DM no more than 25-30 Cal/KgBodyweight. DeFronzocited in Soegondo, 2011, explains an excessive blood glucose levels in the blood due to excessive carbohidrat consumption can cause destructed the beta cells of the pancreas that the function for the producing of insulin.

4. The relationship between Regularity of activities with Hyperglycemia on DM patients already taking OHD

Results of statistical tests were obtained there was difference between the proportion of events with respondents hyperglycemia habit of activity or sport is irregular with respondents who have a habit of regular exercise or activity (there was significant relationship between habitual activity or sport with events of hyperglycemia).

Vranic, *et al* in Soegondo(2011) Stated that sport was very importantfor controlling the glucose blood levels. Some of the results with cohort studies found that cases of type II DM was higher in the group that performs the activity or sport less than 1 times a week compared to the group that performs the activity or exercise 5 times a week. Other research to the nursing women whom doing sport during eightyears obtained the risk of type II DM is decrease by 33%.

The main source of energy on someone who is doing a sport derived from glucose and free fatty acids. Glucose will be used on the

initial activity and after 30 minutes new free fatty acids will be used to produce energy. Chaveau and Kaufman (1889) in Soegondo (2011) said sports at diabetisi will lead to increased use of glucose by muscles active. Sport on diabetisi was the major role in the setting of blood glucose levels and improve response to insulin receptors.

5. Relation between regularity of consumption OHD with Hyperglycemia among DM patients already taking OHD

Results of statistical tests are obtained there is a difference between the proportion of events with hyperglycemia respondent OHD irregular consumption habits with respondents who have a habit of regular consumption of OHD (there is a significant relationship between consumption habits OHD with hyperglycemia).

Purpose of Oral Hypoglycemia Drug (OHD), to control blood glucose levels in chemistry or Pharmacology term. Some of the effects of the use of the OHD among others 1) insulin production stimulation by beta cell 2) increase sensitivity to insulin receptor and 3) inhibits the formation of glucose.

Soegondo (2011) States to achieve targets controlling glucose at diabetics then needed a combination of activities, planning meals and proper use of OHD. The use of improper OHD or irregular, would lead to hyperglycemia and are at risk for experiencing complications as a result of the long hyperglycemia in life. A statistically derived that 58% diabetisi consume OHD with dosage and time is not appropriate that cause of the persistent Hyperclycemia.

6. The relationship between Knowledge of DM Management with Hyperglycemia among DM patients already taking OHD

Results of statistical tests were obtained there was difference between the proportion of events with hyperglycemia respondents with less knowledge of respondents who have a good knowledge (there was significant relationship between knowledge of DM management with hyperglycemia).

Various studies, generally showed that patient obedient to the treatment of chronic diseases were low. A good knowledge of DM management is very important for diabetisi, because DM is chronic disease that lasts in long time. Patient who have good knowledge is expected to change his behavior and control his illness so that his quality of life is more better. 80% diabetisi with inadequate knowledge using OHD in correct as inject the insulin dose and rate are not true, 58% use dosage and time consumption of inappropriate OHD and 75% do not follow a diet that is not right. This condition will going to cause the levels of glucose blood uncontrolled.

The Limitations of the Research

In the process of research, there were some limitations, include 1) Limited of the amount research samples, 2) limitations in validation of data or information provided by the respondents, because the interview was only method for data collection. This condition influenced the result of research.

Conclusion and Recommendation

A summary of this study included 1) Distribution of the levels glucose blood from patients who

already using OHD, majority of respondent was hyperglycemia (62.5%), majority of respondents have age above 60 years (75%), 65% respondents was experiencing anxiety, 57,5% respondents not obedient to diet, respondents with irregular exercises, 80% respondents using irregularly medication and 75% respondents have less knowledge of DM management. 2) there was relationship between psychological problems (anxiety) and hyperglycemia in DM patients who already using OHD, 3) there was relationship between age and hyperglycemia in DM patients who are already using OHD, 4) there was relationship between obedient of diet with hyperglycemia in DM patients who already using OHD, 5) there was relationship between regular physical activities with hyperglycemia in DM patients who already using OHD, 6) there was relationship between regularity consumption of OHD with hyperglycemia in DM patients who already using DM OH, 7) there was relationship between knowledge of DM management with hyperglycemia in DM patients who already using OHD.

Conclusions in the research, it was recommended for the DM manager to observe and identify the factors that contribute to the occurrence of hyperglycemia in DM patients that taking OHD but the levels of glucose blood not yet stable.

References

Almatsier, Sunita, 2008. *The Basic Principles Of Nutrition*, Jakarta: PT Gramedia Pustaka

- Lampung Province Health Office
2008. *Profile Of Health
Province Of Lampung*.
- Manjoer, Arief, 2001. *Medical
Capita Selecta* , Vol. 1,
Jakarta: Media Aesculapius
- Mihardja L, 2009, *Factors Related
To Blood Glucose Control In
People With Diabetes Mellitus
In Indonesia Urbans*,
Indonesia Medicine Magazine,
Volume: 59 number: 9
- Notoatmodjo, S, 2010, *Methodology
of Health Research*, Jakarta:
Cipta Rineka Publisher
- RI Department of health, 2008. *DM
Surveilen*. Jakarta Department
Of RI
- Soegondo, S. et al, 2011, *Integrated
Treatment of Diabetes mellitus*,
Second Edition, Jakarta: The
Publishers of Medicine.
- Soegondo S, (2006), *Diabetes
mellitus as a risk factor for
Cardiovascular Disease, the
Main* Jakarta: Indonesia
Doctors Association (IDI)
- SudigdoSatroasmoro, et al,
2002, *basics of clinical
research Methodology*; Second
Edition, Jakarta: SagungSeto
- Suzanne c. Smeltzer, 2002, *Medical
Surgical Nursing*. The eight
Edition Vol2., Jakarta: EGC
medical books
- World Health Organization (WHO),
2005, *National Diabetic
Statistics*, downloaded from
([http://www. WHO.org.id](http://www.WHO.org.id))
accessed March 5, 2013

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