PROFILE OF TYPE II DIABETES MELLITUS WITH CENTRAL OBESITY IN DR. SOETOMO HOSPITAL

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ABSTRAK

*Obesitas, terutama obesitas sentral sering berhubungan dengan resistensi insulin dan diabetes mellitus tipe 2. Diabetes mellitus adalah penyakit nomor enam penyebab kematian di Indonesia dengan proporsi kematian sebesar 5,8%. Tujuan penelitian ini adalah untuk mengidentifikasi obesitas sentral pada pasien dengan diabetes mellitus di Poli Endokrin Dr Soetomo, Surabaya tipe 2. Desain penelitian adalah penelitian deskriptif. Sampel yang digunakan adalah 100 pasien diabetes mellitus tipe II dengan variabel obesitas sentral dan diabetes mellitus tipe 2. Data diperoleh melalui wawancara terhadap pasien dan melakukan pengukuran berat badan, tinggi badan dan lingkar pinggang. Analisa data dengan menginterpretasikan deskripsi variabel yang diteliti dan membandingkan dengan teori dan penelitian lain. Hasilnya, penderita diabetes mellitus tipe II 66% adalah perempuan, dengan level pendidikan medium, bukan pekerja, berusia lebih dari 50 tahun yaitu 43% untuk interval 51-60 tahun, 43% pada tinggi badan 1,50- 1,59 meter dan berat badan 28% pada 50-59 kilogram dan 28% pada 60-69 kilogram. Menurut pengukuran Body Mass Index (BMI) 54% pasien tergolong normal dengan rata-rata 25,56 8,12 kg/m2. Pada pengukuran lingkar pinggang, 73.5% pria and 81.8% wanita obesitas sentral. Kesimpulannya, persentase pasien diabetes mellitus tipe II yang memiliki obesitas sentral adalah 81,82% wanita and 73, 53% pria.**(FMI 2015;51:177-179)***

Kata kunci: *obesitas sentral, diabetes mellitus tipe II*

ABSTRACT

*Obesity, especially central obesity is often associated with insulin resistance and type 2 diabetes mellitus. Diabetes mellitus is a disease of the number six cause of death in Indonesia with the proportion of deaths by 5.8%. The purpose of this study was to identify central obesity in patients with type 2 diabetes mellitus in Poly Endocrine Dr. Soetomo Hospital, Surabaya. The study design was descriptive study. The sample was 100 type 2 diabetes mellitus patients taken with purposive sampling technique. The variable was central obesity and type 2 diabetes mellitus. The data obtained by interviewing patients and performing measurements on body weight, height and waist circumference. Data were analyzed by interpreting how the description of the variables studied and compared with other studies and theories. The results was the characteristics of patients most were female (66%), level of education was medium, unemployment, most of patient's age was more than 50 years old, 43% for interval 51-60 years old, 43% were 1,50-1,59 meters in height and 28% were 50-59 kilograms and 28% were 60-69 kilograms in weight. According to Body Mass Index (BMI) measure that 54% the patients are normal in average 25,56 8,12 kg/m2. Measurement of waist circumference showed that 73.5% male and 81.8% female patients had central obesity. The conclusions, precentage of patients with type II diabetes mellitus who have central obesity were 81,82% female and 73, 53% male.**(FMI 2015;51:177-179)***

Keywords: *central obesity, type 2 diabetes mellitus*

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INTRODUCTION

Obesity is common health problem. Obesity induced the onset of disease. Central obesity is related with insulin resistance and type II diabetes mellitus. According to DEPKES 2010 diabetes mellitus is a disease of the number six cause of death in Indonesia with the proportion of deaths by 5.8%. It's important to identify figures of central obesity on patient with type II diabetes mellitus. Fat persons with weight more than 90 kg have more chance stuck diabetes mellitus. There are nine from ten fat persons are potential for diabetes mellitus. There are more patient with Type II diabetes mellitus (DEPKES RI 2010). Although there are many information about correlation between obesity and type II diabetes mellitus, there is no information about figure of central obesity on patients with type II diabetes mellitus in Dr. Soetomo Hospital. The aim of this study was to figure central obesity in patients with type 2 diabetes mellitus in Endocrine Clinic, Dr. Soetomo Hospital, Surabaya according to interview with patients

and perform measurements on body weight, height and waist circumference.

MATERIALS AND METHODS

This study was an observational study held in Care Unit of Endocrine Department Dr. Soetomo Hospital, Surabaya on October until November 2011. Sample study was taken by purposive sampling on 100 patients with type II diabetes mellitus. Data were collected by questionnaire interview as sex, age, education, and job and data about obesity level according to BMI and waist circumference collected by measure height, weight, and waist circumference. All data has been got will describe in table and chart as age, sex, education, job, height, weight, BMI (Body Mass Index), obesity level according to BMI and waist circumference.

RESULTS

Table 1. Characteristic of type II diabetes mellitus patients in October - November 2011 (n=100)

Characteristics	n	%
Gender		
Male	34	34
Female	66	66
Age (years old)		
< 30	1	1
31-40	2	2
41-50	19	19
51-60	43	43
61-70	31	31
>70	4	4
Education		
Low (≤ 9 years)	29	29
Medium (9-12 years)	56	56
High (> 12 years)	15	15
Occupation		
Employee	30	30
Unemployment	70	70
Height (meters)		
>1.40	3	3
1.40-1.49	14	14
1.50-1.59	43	43
1.60-1.69	34	34
≥1.70	6	6
Weight (kilograms)		
<40	1	1
40-49	13	13
50-59	28	28
60-69	28	28
70-79	22	22
80-89	7	7
≥90	1	1

Total sample size was 100. Based on the table bellow it was found that most of patient with type II diabetes in Dr. Soetomo Hospital are female aged around 51-60 years old in medium level of education, unemployment with height about 1.50-1.59 meters and weight about 50-69 kilograms.

Based on Body Mass Index (BMI) measured, we found that patient with type II diabetes mellitus are non obese about 83 persons. However according to waist circumference obese patients with central obesity about 73.5% or same as 25 people in male and 81.8% or same as 54 persons in female.

Table 2. Level of obese with central and non-central obesity

Obesity Level	Central Obesity		Non-central obesity		Total	
	n	%	n	%	n	%
Male						
Normal	9	36.0	9	100	18	52.9
Pre-obese	12	48.0	0	0.0	12	35.3
Obese	4	16.0	0	0.0	4	11.8
Total	25	73.5	9	100	34	100.0
Female						
Normal	25	46.3	11	91.7	36	54.5
Pre-obese	16	29.6	1	8.3	17	25.8
Obese	13	24.1	0	0.0	13	19.7
Total	54	81.8	12	18.2	66	100.0

DISCUSSION

Based on this study most of patient with type II diabetes mellitus and also obesity about 66% were female. It was different from Handayani 2003 who has reported that type II diabetes mellitus patient with obesity 52.8% were male. Same as Handayani's study, level of education was medium, most of patient's age was more than 50 years old, 43% for interval 51-60 years old but Handayani 2003 has discovered that most of patients were more than 60 years old with presentation 33.3%. In this study, found that 43% were 1.50-1.59 meters in height and 28% were 50-59 kilograms and 28% were 60-69 kilograms in weight.

In this study and Handayani's study most of patients were normal according to Body Mass Index (BMI) measure that 54% the patients are normal in average 25,56 8,12 kg/m2 in this study and 24,2 3,6 kg/m2 in Handayani's study.BMI measurement less for showing figure of obesity because high weight may from muscle or fat mass. Obesity measurement is better to use waist circumference because it show central obesity or not (Gotera et al 2006).

Measurement of waist circumference result by International Diabetes Federation criteria (2004) for South Asia found that male has central obesity if his waist ≥90 cm and ≥80 cm in female, this study showed that 79% patients had central obesity. For comparison, in a study conducted by the Sri Handayani in 2003, the percentage

of central obesity in patients with type 2 diabetes mellitus as much as 63.9%. This difference can be caused by various factors of different research methods, different patient data collection system, or cause factors onset of diabetes mellitus. Based on this study, the patient with central obesity were female, there was 81,82%. The addition of abdominal fat in premenopausal women is inhibited by estrogen, whereas when postmenopausal the number estrogen decreases thus it will increase incidence of visceral obesity. In male, testosterone causes the accumulation of visceral fat tissue (Indra 2006). From this statement we conclude central obesity occur on older person.

In central obesity there is an accumulation of fat in the abdominal area. The large number of visceral adipose tissue in abdominal will secrete free fatty acids, TNF-α, IL-6, and resistin in high amounts and it cause insulin resistance. Additionally adiponectin levels were lower in central obesity will decrease insulin sensitivity, whereas high leptin will lead decrease insulin sensitivity. Reduction insulin sensitivity caused insulin resistance. Insulin resistance will lead to type 2 diabetes mellitus that ß-cell pancreas cannot produce enough insulin in hyperglycemic conditions (Darmawan 2009). However, keep in mind that obesity is not the only cause of insulin resistance (Foster 1994).

CONCLUSION

Patients' proportion with type II diabetes mellitus with central obesity were 81.82% female and 73.53% male.

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