Nutritional Status of Schizophrenic Patients at Department of Psychiatry in Dr. Hasan Sadikin General Hospital

Tiara Aulia Maisyarah[1], Gaga Irawan Nugraha[2], Lynna Lidyana[3]
[1]Faculty of Medicine, Universitas Padjadjaran, [2]Department of Nutritional Sciences, Faculty of Medicine, Universitas Padjadjaran, [3]Department of Psychiatry, Faculty of Medicine, Universitas Padjadjaran/Dr. Hasan Sadikin General Hospital

Abstract

Background: Currently, schizophrenia is associated with many health problems due to weight changes caused by lifestyle changes and consumption of antipsychotic drugs (APDs). Nutritional status assessment is needed in order to lower the comorbidity through early detection of risk factors.

Methods: This descriptive cross-sectional study involved 94 schizophrenic patients selected using consecutive sampling in October 2012 in Psychiatry Outpatient Department, Dr. Hasan Sadikin General Hospital, Bandung. An anthropometric measurement was verified (body mass index and waist circumference), physical activity level, type of antipsychotic drugs (APDs) used and duration of treatment acquired from medical records.

Results: Among the subjects, 29.8% were 28–37 years old, with 69.1% males and 30.9% females. Most of them suffered from paranoid schizophrenia (71.3%). The body mass index (BMI) of 46.8% subjects were normal, 45.74% were overweight, whereas 7.45% were underweight. Male subjects mostly had smaller waist circumference (78%) compared to females who were dominantly above normal (52%). Physical activity levels were mostly sedentary (76%). Single typical APD were dominantly prescribed (46%). Subjects with normal BMI were mostly found among single typical APDs prescribers (53.5%), whereas the majority of atypical APDs users were overweight (61.9%). A total of 63% subjects had been prescribed APDs for 1–5 years, dominated by subjects with normal body mass index (78%).

Conclusions: The majority of study subjects (46.8%) were found normal in terms of the body mass index. Male subjects mostly had normal waist circumference (78%) while females have a higher risk with measurement above normal as a more dominant finding (52%). [AMJ.2014;1(1):40–7]

Keywords: Nutritional Status, Pscychiatry, Schizophrenia

Status Gizi Pasien Skizofrenia di Departemen Psikiatri Rumah Sakit Dr. Hasan Sadikin Bandung

Abstrak

Latar Belakang: Saat ini Skizofrenia merupakan suatu penyakit mental dengan komorbiditas yang tinggi akibat perubahan gaya hidup, faktor predisposisi, dan dampak mengonsumsi obat antipsikotik yang membuat penderita kerap mengalami perubahan berat badan. Oleh karena itu, diperlukan deteksi dini perubahan berat badan pada pasien skizofrenia sebagai pertimbangan penyusunan tatalaksana yang komprehensif.

Metode: Studi deskriptif potong lintang ini dilakukan untuk mengetahui status gizi pasien skizofrenia di Klinik Rawat Jalan Departemen Psikiatri Sub Bagian Dewasa Rumah Sakit Dr. Hasan Sadikin Bandung. Pengukuran Indeks Massa Tubuh (IMT) dan lingkar pinggang dilakukan pada 94 pasien skizofrenia dewasa. Wawancara mengenai pekerjaan juga dilakukan untuk mengetahui tingkat aktifitas fisik, riwayat pengobatan responden didapatkan melalui rekam medis.

Hasil: Dari 94 responden (65 pria dan 29 wanita) mayoritas berusia 28–37 tahun (29.8%). Sebanyak 46.8% responden memiliki IMT normal, 45.74% responden adalah overweight, dan 7.45% termasuk dalam kategori underweight. Responden pria memiliki ukuran lingkar pinggang yang mayoritas normal (78%), sedangkan wanita sebagian besar memiliki ukuran lingkar pinggang di atas normal (52%). Tingkat aktifitas fisik responden rata-rata tergolong ringan (67%). Kebanyakan responden diberikan obat antipsikotik

Correspondence: Tiara Aulia Maisyarah, Faculty of Medicine, Universitas Padjadjaran, Jalan Raya Bandung-Sumedang Km.21, Jatinangor, Sumedang, Indonesia, Phone: +6285721652156, Email: tiara.aulia.m@gmail.com

tipikal tunggal (46%) dan sebanyak 63% telah mengonsumsi obat antipsikotik selama 0–5 tahun.
Simpulan: Mayoritas responden memiliki IMT yang normal dengan ukuran lingkar pinggang wanita lebih tinggi dibandingkan dengan pria.

Kata Kunci: Status Gizi, Psikiatri, Skizofrenia

Introduction

Schizophrenia is a mental illness with similar prevalence throughout the world, which is 1% of the total population. The disease is commonly found between the ages of 15 and 55, with a higher incidence in males.[1,2] Schizophrenia is known as a major mental illness due to its major impact on almost all aspects of the patient's life, that often leads to difficulty in interaction with others.[2]

Nowadays, schizophrenia is associated with many health problems due to weight changes that increases morbidity and mortality.[3] It can also be caused by genetics, predisposing factors, lifestyle changes, and antipsychotic drugs (APDs) consumption.[4] An alteration in body weight is a common problem found in schizophrenic patients as they may experience weight gain or vice versa. Weight loss, that can be caused by hypophagia, restrictive diet, and other health problems, is usually found at the beginning of the treatment.[5] On the other hand, the lifestyle of schizophrenic patients who more likely prefer fatty foods and consume fewer vegetables, is exacerbated by the side effects of antipsychotic drug use which may cause great impact by increasing the risk of obesity to 2–3 times greater than the general population.[4] These events will further increase the incidence of premature death due to cardiovascular disorders.[6]

During treatment, patients are given APDs which works by blocking dopamine receptors that, in addition to treating the positive symptoms of schizophrenia such as hallucinations and delusions, can also stimulate appetite and cause metabolic disorders.[7] The increasing use of atypical antipsychotics also increases the incidence of dramatic weight gain in patients with schizophrenia. Hyperglycemia and diabetes are complications that can further increase the level of comorbidity and mortality, with obesity and antipsychotic drugs consumption as the greatest risk factor for diabetes development in schizophrenia.[8]

Health problems in people with schizophrenia are generally difficult to diagnose, causing delay in treatment.[8] This is due to the difficulty of the patient to express grievances. In addition, as many as 60% of health problems are not detected due to low monitoring by health services. Comorbidity can be prevented with early detection for early treatment, including through lifestyle modification.[8]

The physical health of patients with schizophrenia is an important issue to consider when preparing a comprehensive treatment.[9] Assessment of the nutritional status, such as measurement of body mass index and waist circumference, is expected to detect risk factors that may increase comorbidity and mortality.[10]

Methods

This descriptive cross-sectional study was conducted during October 2012. Patients from Psychiatry Outpatient Clinic of Dr. Hasan Sadikin General Hospital, Bandung, Indonesia who were diagnosed as schizophrenic according to the Diagnostic and Statistical Manual of Mental Disorders 4th Edition (DSM-IV) with the age of ≥ 18 years received explanations on the goal and benefit of the study while accompanied by their family. An informed consent was signed to indicate the family's understanding and permission to include the patients in the study as subjects. The family members that were allowed to give consent for the patient's participation parents/guardian/kin/landlady, aged ≥ 21 years/married, with a healthy mental state. Patients who were not accompanied by a family member when the study took place were excluded.

A total of 94 subjects were recruited using the consecutive sampling technique. The variables used in this research were subject characteristics that included age, gender, and subtype diagnosis of schizophrenia (established by a psychiatrist and obtained from the medical record). The nutritional status was determined by calculating the Body Mass Index (weight (kg)/height (m)^2) and were then classified based on the Body Mass Index for the Asia Pacific Region by WHO:

Table 1 Overall Characteristics of the Subjects (n=94)

Variables	Frequency	Percentage
Gender		
Male	65	69.1
Female	29	30.9
Age (Years old)		
18–27	17	18.1
28–37	28	29.8
38–47	27	28.7
48–57	18	19.1
58–67	4	4.3
Subtypes Diagnosis		
Hebephrenia Schizophrenia	15	16
Paranoid Schizophrenia	67	71.3
Postschizophrenic Depression	2	2.1
Residual Schizophrenia	3	3.2
Unspecified Schizophrenia	7	7.4
Antipsychotic Drugs (APDs) Used by Patients		
Typical APDs	43	45.7
Atypical APDs	21	22.3
Combination of Typical and Atypical APDs	7	7.4
Combination of Two typical APDs	23	24.5
Duration of APDs Treatment		
0–5 Years	68	72.3
6–10 Years	16	17
11–15 Years	10	10.6
Physical Activity Level		
Sedentary	63	67
Active	25	26.6
Vigorous	6	6.4

underweight (<18.5), normal (18.5–22.9), and overweight (≥ 23). The results of the waist circumference measurement based on the WHO, were compared to the Asian standards: high if > 90 cm for males and > 80 cm for females.

The information on physical activity level was obtained through interviews about daily activities of the subject. The classification was as follows: (1) Sedentary; those with activities that do not require a lot of energy, sedentary lifestyle is one of the examples. (2) Active;

those with mild activity level, meaning that they regularly do active to vigorous activities at certain times. (3) Vigorous; those who work hard for a few hours on a regular basis, for example, a swimmer, a farmer (without engine) and workers who lift heavy weights.11

The history of treatment was also assesseds based on two things: (1) Type of antipsychotic drugs consumed (the last antipsychotic drugs consumed when the study took place), (2) Duration of treatment (which covers the period since the subject started to take antipsychotic drugs for the first time until the time the study took place.) The data were further processed and analyzed according to the descriptive method using SPSS (for windows) to seek for the frequency and to create cross tabulation.

Results

Sixty five males and 29 females with the age ranging from 18 to 67 years participated in this study with most subjects (n=28 or 29.8%).) were in the age group of 28–37 years (Table 1). The majority of subjects (33) did not have a job (35.1%). There were 71% of subjects who suffered from paranoid schizophrenia. More subjects were on typical APDs (46%) compared to atypical APDs (22%). Around 24% of subjects were given combination of two typical APDs. This percentage was higher than the number of subjects given the combination of atypical and typical APDs (22%). Haloperidol ranked first as the typical APDmost commonly prescribed to the subjects (64.9%), followed by risperidone (21.3%).

Most of the subjects (72%) had been taking antipsychotic medication over a period of 0–5 years and fewer subjects had taken the medication after that time span. Subjects with a normal body mass index (46.81%) were the highest in frequency compared to other categories (table 2) although the difference was very small from the percentage of subjects with overweight status based on the body mass index (45.74%). The majority of male subjects had a waist circumference of ≤ 90 cm (78%), while the distribution for female subjects was almost equal in both categories. Most of the subjects (67%) had sedentary physical activities.

Normal BMI and overweight were found in all age groups (Table 3). Of the total subjects (n=94), normal BMI was the highest proportion in the 38–47 age group (16%). The highest percentage of overweight was found in the age group 28–37 and 38–47, both with 12 subjects

Table 2 Nutritional Status of the Patients

Variables	Frequency	Percentage
BMI		
Underweight	7	7.4
Normal	44	46.8
Overweight	43	45.7
Waist Circumference		
Male		
≤ 90 cm	51	54.3
> 90 cm	14	14.9
Female		
≤ 80 cm	14	14.9
> 80 cm	15	16

(12.8%). Most of the subjects who were given typical APDs had normal BMI (53.5%). In contrast, subjects who consumed atypical APDs were mostly overweight (61.9%). However, overweight subjects were also found in typical APDs users with a percentage of 18.1%. Haloperidol users had normal BMI (52.5%). However, the consumption of haloperidol combined with CPZ caused the majority of the subjects to be overweight (52.4%). All quetiapine, olanzapine (single and +CPZ), clozapine and aripiprazole users were also overweight.

From all the subjects who took APDs for 0–5 years, 32 (47.1%) were overweight. Subjects with normal and overweight BMIs were found in all groups, while underweight subjects were absent in the group that had taken APDs for 11–15 years.

Discussion

The majority of subjects had a normal BMI (46.81%), a finding that is similar to the result of a study conducted by Sadhya et al.[5] regarding the nutritional status of patients with schizophrenia in an outpatient clinic of a hospital in Dhaka. Overweight in schizophrenic patients may be influenced by many things, such as genetics, lifestyle, and antipsychotic drug use.[4] However, there is a significant relationship between overweight and APD side effects (particularly for the atypical

Table 3 Overall Characteristics of the Patients Included in the Study According to the BMI

General Concept	BMI (%)		
	Underweight	Normal	Overweight
Age (Years Old)			
18–27	5.9	52.9	41.2
28–37	21.4	35.7	42.9
38–47	0	55.6	44.4
48–57	0	44.4	55.6
58–67	0	50	50
Antipsychotic Drugs (APDs) Used by Patients			
Typical APDs	7	53.5	39.5
Atypical APDs	4.8	33.3	61.9
Combination of Typical and Atypical APDs	0	71.4	28.6
Combination of Two typical APDs	13	39.1	47.8
Duration of Treatment			
0–5 Years	7.4	45.6	47.1
6–10 Years	12.5	43.8	43.8
11–15 Years	0	60	40

Note: BMI= Body mass index

group); the consumption of APDs was the major risk factor for obesity in schizophrenic patients.[8] These drugs stimulate the appetite and tendency to eat sweet or fatty foods, which gives a direct effect on the nervous system and metabolism that control satiety and weight loss. Other factors, such as low levels of physical activity due to mental disorder, can also be taken into account as risk factors. We should be wary of this condition because it will increase the incidence of premature death due to cardiovascular disorders that commonly occurs in patients with schizophrenia.[7] In addition, underweight subjects were also found, which might be caused by hypophagia, restrictive diet, and other health problems.[5] Another factor that may play a role is that the low socioeconomic subjects were less able to meet the needs for balanced nutrition for the body.

The results of this study suggested that women with a waist circumference of > 80 cm (52%) had a higher risk than the majority of men with a waist circumference of ≤ 90 cm (78%). These findings contradict the results of the study conducted in Malaysia on the nutritional status of patients with schizophrenia in the Outpatient Clinic of Universiti Kebangsaan Hospital Malaysia that statedhigh waist circumference is more common in male subjects.[12]

Most of the subjects were categorized as having a sedentary physical activity level. This condition is a risk factor for weight gain. In patients with schizophrenia, weight gain due to minimal activity could be coupled with an increase in appetite due to the APDs side effects.[7]

Based on the information obtained from the relevant clinic, all patients used a health insurance scheme, i.e. Jamkesmas or Askes,so APDs can be obtained free of charge. However, there were differences in drug dosage for each insurer; only three types of APDs were available for the users of Jamkesmas, which were from the typical APD class (haloperidol, chlorpromazine, and trifluoperazine), while the drug and dosage of APDs for Askes users are more varied, which include typical APDs as in Jamkesmas, with the addition of
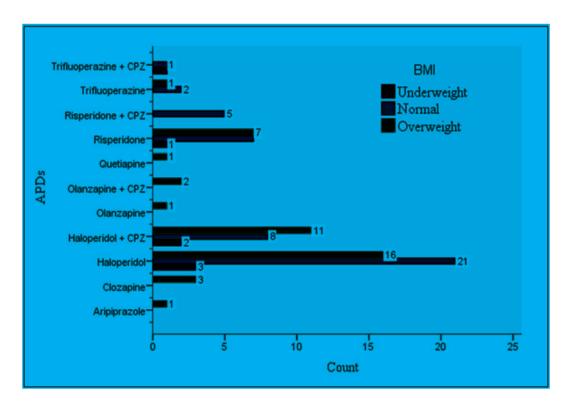
Figure 1 Antipsychotic Drugs (APDs) Used by Patients According to BMI (n=94)

atypical APDS, namely clozapine, olanzapine, risperidone, and quetiapine.[13,14]

Haloperidol is the most commonly consumed typical APDs. The reason is because haloperidol effectively relieves the positive symptoms and is readily available from both health insurances.

Unlike typical drugs, atypical APDs are pointed out as effective antipsychotic drugs to relieve both positive and negative symptoms and they tend to be 'safe' because of the lack of extrapyramidal effects compared to the typical group.[15] APDs from this class are not available for Jamkesmas users, so they can only be prescribed to the Askes users. A small number of subjects who were prescribed atypical APDs showed a number of typical drug-sensitive subjects so atypical APD was not necessary.

A total of 72.3% subjects had been taking antipsychotic medication in a span of 0–5 years. The reason that may impact this high percentage was the patient's high compliance. The less number of subjects who took the drug for more than 5 years indicating the possibility of a decline in adherence regarding follow-up given that the control of the disease is performed every month for life and the high mortality rate among patients with schizophrenia.

There is a relationship between body mass index and age. Body weight increases until the age of 49 years and decreases slightly after 50 years. Increased weight in middle age is caused by the accumulation of more fat due to the higher appetite leadingto increased energy intake and fat-rich diet. Weight loss in elderly is due to decreased muscle mass caused by reduced protein intake and decrease in the size and number of muscular fibers and bone mineral mass caused by degenerative diseases.[16]

A total of 53.5% of the subjects who were given typical APDs were categorized as having normal BMI. This was supported by a study conducted by Czobor et al.[17] regarding the effects of typical APDs, such as haloperidol, on weight gain which stated that this type is the type of antipsychotic that had the least significant effect on overweight than other antipsychotics. However, a meta-analysis by Alisson et al.[18] mentioned that haloperidol could still increase as much as 0,48 kg body weight after ten weeks, while trifluoperazine does not cause any significant weight gain.

In contrast, there were more overweight subjects in the atypical APDuser category. However, normal BMIs are still found in many risperidone users. Risperidone, as well

as haloperidol, does not significantly cause overweight.[18] Clozapine and olanzapine are the two atypical APDs that are related to a high mortality rate due to cardiovascular diseases caused by obesity.[18] Based on the literature, weight gain may happen as a 3.5–4 kg increase in weight in the first ten weeks of clozapine/olanzapine consumption and will continue to rise, especially for patients undergoing long-term treatment.[5]

Weight changes will continue to occur in a given period. In patients taking clozapine, weight gain will occur until week 46 (± one year).[18] Based on the description above, the effects of APDs in the early years, which is an increase of that exceeds the normal limit, give impact on the higher frequency of overweight subjects in 0–5 years group.[18] As people age, the ability of the body metabolism will decrease. With a long-term APDs consumption and low physical activity, obesity may be a risk factor after the first year of treatment.[18]

One of the limitations of this study is the unknown nutritional intake of the study samples as a direct effect on nutritional status. Moreover, there is no information available on the BMI and waist circumference of the subjects before starting the treatment so it is unknown whether the subjects experienced any alteration of body weight or not.

To conclude, most of the subjects' nutritional status are normal in relation to BMI. The majority of male subjects have normal waist circumferences, whereas most women have waist circumferences that are higher than the standard.

A control of nutritional status should be performed periodically each time the patient comes for the monthly follow-up. Patients with abnormal alteration in the BMI and waist circumference need to be subjected to nutrition and lifestyle modification. However, further research can be perfomed by adding nutritional assessment through laboratory testing, such as lipid profile, cholesterol, and blood glucose assessments as a risk factor for early detection. In addition, the function of the general health of patients regarding the ability to respond to the study is also noteworthy since schizophrenia has a substantial impact in the overall function of the patient.

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