

# Quetiapine Effect against Increased Body Weight on Schizophrenic Patients

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## Abstract

Increased body weight often observed as a side effect of antipsychotic treatment, but this is rarely reported and known by many patients. Quetiapine research conducted during the 1-year showed an increase in average body weight after treatment of 2.1 kg in 778 patients after 5-6 weeks; 1.9 on 556 patients after 6-9 months; and 2.8 kg in 360 patients after 9-12 months. This study to determine the effect of quetiapine on increased body weight in schizophrenic patients (baseline and endpoint) by gender, age, and increased of body mass index (BMI). The study design was a pre-experimental research in the form of one group pretest - posttest design in a mental hospital in North Sumatera Province period from April 2011 until June 2011. This study found 30 participants showed increased body weight from the early month until the 1 month is 0.943 (SD=0.681) with dependent t test found significant differences in improvement of early month until the 1 month increased of body weight ( $p=0.0001$ ). The mean weight loss of the 1 month until 2 months was 0.88 (SD=0.503) with dependent t test found significant differences in the increase body weight of the 1 month until 2 months ( $p=0.0001$ ). The mean increase of initial BMI to the 1 month is 0.539 (SD=1.070) with dependent t test found significant differences in improvement of initial BMI and 1 month ( $p=0.01$ ). The mean BMI of the 1 month until 2 months was 0.379 (SD=0.221) with dependent t test found significant differences increased in BMI of the 1 month until 2 months ( $p=0.0001$ ). There were no significant differences in body weight change based on age groups ( $P=0.238$ ) and not significantly different changes in body weight based on gender ( $P=0.256$ ). There are significant difference in increased of body weight and body mass index on usage the oral quetiapine.

**Keywords:** schizophrenic patients, body weight, body mass index.

## 1. Introduction

Schizophrenia is a psychotic mental disorder of unknown cause, characterized by thought disorder, mood, and behavior disorder, as well as cognitive deficits. Schizophrenia is a severe form of psychotic disorders and fluctuating lifetime with a history of high recurrence. Atypical antipsychotics are essential in the treatment of schizophrenia and other psychotic disorders, and is widely used as first-line pharmacotherapy for psychotic disorders (Javitt et al., 2010).

Increased of body weight often observed as a side effect of antipsychotic treatment, but this is rarely reported and known by many patients. Increased of body weight is often followed by the use of conventional and atypical antipsychotics, and the degree is dependent on the drug and the individual patient (DJ Bond, et al., 2010; J Bobes, et al., 2003). The quetiapine research during the 1-year showed an increase in average body weight after treatment of 2.1 kg in 778 patients after 5-6 weeks; 1.9 kg in 556 patients after 6-9 months; and 2.8 kg in 360 patients after 9-12 months (S Gupta, et al., 2004).

## 2. Subject and Methods

This study was approved by the Research Ethics Committee of Medical Faculty University of Sumatera Utara. The study design was a pre-experimental research in the form of one group pretest - posttest design in a mental hospital in North Sumatra Province period from April 2011 until June 2011. Thirty patients with schizophrenia were recruited as participants. Inclusion criteria were age 15-55 years, first episode schizophrenia, diagnosis of schizophrenia according to the diagnostic criteria of ICD X, and have an ideal BMI. Exclusion criteria: suffering from the disorder or severe physical illness, and comorbid psychiatric disorders, hypersensitivity to quetiapine, currently using of antipsychotics and/or other drugs that may increase the body weight before the study, pregnant and breastfeeding.

### 2.1 Assessment and Rating

Autoanamnesis interviews were carried out (and alloanamnesis) on patients and their families and mental status examination in patients in the outpatient. Patients who according the inclusion criteria and had the same severity as measured by the PANSS total score  $\geq 60$ , will be included in the study. Then the patient's weighing of the initial (baseline) and measurements of body mass index and given medication quetiapine. During the study the dose of quetiapine can be titrated if there is no improvement of symptoms of schizophrenia based on the PANSS scores, and the dose was not increased further if it considers there is progress in therapy (decreased in PANSS total score reaches  $\geq 40\%$ ). Assessment of PANSS scores be measured every week. After 2 months of weighing

is carried out late (endpoint) and final body mass index measurement.

### 2.2 Statistical Analysis

To assess whether there is a comparison of the increase in body weight and body mass index (comparison baseline and endpoint) in patients with schizophrenia treated with quetiapine used t tests-dependent, with a significant level ( $\alpha$ )=0.05. To assess whether the increase in body weight and body mass index differed significantly by gender and age groups used a hypothesis t test-independent.

### 3. Result

The respondents were 30 schizophrenic patients who come to the installation of outpatient and inpatient psychiatry in a Mental Hospital of North Sumatra Province. Patients were included in this study were patients who come for treatment in the period April 2011 to June 2011.

Table 1. The Distribution of the sample based on age and gender

|             | characteristics | n = 30 | %    |
|-------------|-----------------|--------|------|
| Age (years) | 15 –            | 9      | 30,0 |
|             | 25 –            | 5      | 16,7 |
|             | 35 –            | 9      | 30,0 |
|             | 45 – 55         | 7      | 23,3 |
| Gender      | Men             | 12     | 40,0 |
|             | Woman           | 28     | 60,0 |

The distribution of study subjects according to age groups most is the age groups 15-24 years and 35-44 years were 9 people (30%) and by women were 28 people (60%).

Table. 2. The average of initial body weight, 1 month and 2 month

| Body Weight | (kg) | Mean  | SD   |
|-------------|------|-------|------|
| Initial     | 30   | 55,17 | 5,93 |
| 1 month     | 30   | 56,11 | 5,99 |
| 2 months    | 30   | 56,99 | 5,87 |

The average of initial body weight was 55.17 (SD=5.93); mean body weight at 1 month was 56.11 (SD=5.99); average at 2 month was 56.99 (SD=5.87).

Table. 3. The average of increased body weight from the beginning to the 2 months.

| Body Weight        | Mean  | SD    | P      |
|--------------------|-------|-------|--------|
| initial – 1 month  | 0,943 | 0,681 | 0,0001 |
| 1 month – 2 months | 0,880 | 0,503 | 0,0001 |
| Initial – 2 months | 1,823 | 0,834 | 0,0001 |

The increase in average of initial body weight until 1 month was 0.943 (SD=0.681). The dependent t test significantly different increase of initial body weight until 1 month ( $p=0.0001$ ). The mean body weight of 1 until 2 months was 0.88 (SD=0.503). With a dependent t-test significant differences increase in body weight of 1 until 2 months ( $p=0.0001$ ). The mean initial body weight until 2 months was 1.823 (SD=0.834). With a dependent t test significantly different increased of initial body weight and 2 months body weight ( $p=0.0001$ ).

Table 4. The changes of body weight against age

| Age (year) | N | Mean | SD    | P     |
|------------|---|------|-------|-------|
| 15 -       | 9 | 1,74 | 0,693 | 0,238 |
| 25 -       | 5 | 1,92 | 0,526 |       |
| 35 -       | 9 | 2,21 | 0,639 |       |
| 45 – 55    | 7 | 1,35 | 1,35  |       |

Based on the age group table with ANOVA test can be seen there is no significant difference in weight change by age group ( $P=0.238$ ).

Table 5. The changes of body weight by the gender

| Gender | N  | Mean  | SD    | P     |
|--------|----|-------|-------|-------|
| Men    | 12 | 1,608 | 1,022 | 0,256 |
| Woman  | 18 | 1,966 | 0,674 |       |

Based on the gender table with independent t-test can be seen there is no significant difference in weight change by gender ( $P=0.256$ ).

Table 6. The mean initial BMI, 1 month and 2 months

|          | N  | Mean  | SD   |
|----------|----|-------|------|
| Initial  | 30 | 22,05 | 1,85 |
| 1 month  | 30 | 22,59 | 2,23 |
| 2 months | 30 | 22,96 | 2,24 |

From the table above can be seen that the average initial BMI was 22.05 ( $SD=1.85$ ); mean BMI at 1 month was 22.59 ( $SD=2.23$ ); mean BMI at 2 months was 22.96 ( $SD=2.24$ ).

Table 7. The mean increased of BMI from initial until 2 months

|                    | Mean  | SD    | P      |
|--------------------|-------|-------|--------|
| Initial – 1 month  | 0,539 | 1,070 | 0,01   |
| 1 month – 2 months | 0,379 | 0,221 | 0,0001 |
| Initial – 2 months | 0,918 | 1,081 | 0,0001 |

The increased of mean initial BMI to the 1 month is 0.539 ( $SD=1.070$ ). With a dependent t test significantly different increased of initial BMI and 1 month BMI month 1 ( $p=0.01$ ). The mean increased of 1 month BMI to 2 months was 0.379 ( $SD=0.221$ ). With a dependent t test significantly different BMI increased of 1 month to 2 months ( $p=0.0001$ ). The mean increased of initial BMI to the 2 months was 0.918 ( $SD=1.081$ ). With a dependent t test significantly different initial BMI and increased of 2 months ( $p=0.0001$ ).

#### 4. Discussion

The results showed that the age group most commonly found in the age of 15-24 years and 35-44 years were 9 people (30%). And by gender most women were 28 people (60%). The results showed a mean increased of body weight of the beginning of the month to 2 months, early body weight until the 1 month is 0.943 ( $SD=0.681$ ). The statistical test with t test dependent increased of significantly different initial body weight and 1 month ( $p=0.0001$ ). The mean body weight of 1 month to 2 months was 0.88 ( $SD=0.503$ ). The statistical test with dependent t test significant differences body weight increased of 1 month to 2 months ( $p=0.0001$ ). The mean initial body weight until 2 months was 1.823 ( $SD=0.834$ ). The statistical test by t-dependent increased of significantly different initial body weight and 2 months ( $p=0.0001$ ). The results of this study support the results of a previous study conducted by Lee SY et al, in a retrospective study, that there is a significant difference increase of body weight in the first month and 2 months after the administration of Quetiapine (Lee, et al., 2010).

The statistical test for age groups using ANOVA test can be seen that there is no significant difference in body weight change by age groups. The results of this study support the results of previous studies that the effect of increasing the body weight of quetiapine is not always associated with the age groups (Brecher et al., 2010). However, in contrast to the results of this study conducted by Lee Sy et al that there is a significant difference in the increased of body weight at age <45 years and  $\geq 45$  years in the first month and 2 months after the administration of quetiapine (Lee, et al., 2010).

The statistical test for the gender by using independent t-test can be seen that there is no significant difference in body weight change by gender, the result  $P=0.256$ . The results of this study support the results of a previous study, that there is no significant difference increase in body weight in the first months and 2 months based on the gender (Lee, et al., 2010).

The results showed a mean increased of BMI from initial to 2 months ie, initial BMI to the 1 month is 0.539 ( $SD=1.070$ ). The statistical test with dependent t test significantly different increased of initial BMI and 1 month ( $p=0.01$ ). The mean BMI 1 month to 2 months was 0.379 ( $SD=0.221$ ). The statistical test with dependent t test significantly different BMI increased of the 1 month to 2 months ( $p=0.0001$ ). The mean initial body weight until 2 months was 0.918 ( $SD=1.081$ ). The statistical test with dependent t test significantly different initial BMI and increased of 2 months ( $p=0.0001$ ). The results of this study support the results of a previous study conducted by Lee SY et al, that there is a significant difference in the increase in BMI during the first month and 2 months after the administration of Quetiapine (Lee, et al., 2010).

#### 5. Conclusion

This study found an increased of body weight in 1 to 2 months in schizophrenic patients treated with oral quetiapine with  $P=0.0001$ . This study found no difference increased of body weight by gender ( $P=0.238$ ) and age groups ( $P=0.256$ ). In this study found an increased of body mass index at the first month to 2 months in schizophrenic patients treated with oral Quetiapine ( $P=0.0001$ ).

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