Management of Weight Gain in Taiwanese Patients with Schizophrenia Treated with Second Generation Antipsychotics: A Review of Existing Data

Chaucer C. H. Lin1,2, Ya-Mei Bai3,4, Mong-Liang Lu5, Chao-Cheng Lin6
1 Medical Division, Eli Lily Taiwan, Taipei, Taiwan. 2 Department of Psychiatry, Buddhist Tzu Chi General Hospital and University, Hualien, Taiwan. 3 Department of Psychiatry, Taipei Veterans General Hospital, Taipei, Taiwan. 4 Department of Psychiatry, College of Medicine, National Yang-Ming University, Taipei, Taiwan. 5 Department of Psychiatry, Wan Fang Hospital and School of Medicine, Taipei Medical University, Taipei, Taiwan. 6 Department of Psychiatry, National Taiwan University Hospital and National Taiwan University College of Medicine, Taiwan.

ABSTRACT

Background: Second generation antipsychotics (SGAs) have been widely used for the treatment of schizophrenia and other psychiatric disorders. Weight gain and changes in metabolic parameters, including glucose and lipids, have been reported during treatment with SGAs. This review is focused on the existing data for weight gain during treatment with SGAs and its management in Taiwanese patients, as an effort to overview this issue in the Taiwanese population is not yet noted. Our aim is to obtain further insights when prescribing SGAs and to help patients to deal with the potential risk of weight gain and changes in metabolic parameters they may encounter during SGA treatment. Methods: A literature search for studies published online by the time of start of this report (May 5th, 2011) using the keywords “weight gain”, “metabolic”, “second generation antipsychotics”, “olanzapine”, “clozapine”, “Taiwan” or “management” yielded approximately 45 articles from PubMed, out of which 33 reports were on weight gain and metabolic changes during treatment with SGAs in Taiwan. Twelve of these were on the management of weight gain and changes in metabolic parameters, which is the focus of this review.

Results: The weight gain was more pronounced in patients with lower initial body weight, younger age and greater treatment response. Decreased levels of ghrelin and adiponectin might be associated with the weight gain in SGA-treated patients. About one-third of patients with schizophrenia treated with antipsychotics had metabolic changes. Pharmacological interventions like switching to an alternate SGA with a lower risk of weight gain or co-treatment with fluoxetine, topiramate or metformin have been shown to reduce weight gain. Non-pharmacological interventions like close metabolic monitoring, dietary control, exercise and weight control programs have been found to be successful in weight reduction. Conclusion: Weight gain during treatment with SGAs in schizophrenic patients in Taiwan can be successfully managed by pharmacological or non-pharmacological interventions, which is compatible with international studies.

INTRODUCTION

Second Generation Antipsychotics (SGAs)1
• Good efficacy for negative symptoms
• Favorable effects on cognitive function
• Low risk of extrapyramidal adverse events at effective clinical doses
• Low rate of relapse/treatment failure

Fig 1: Potential Metabolic-related Adverse Events During Treatment with SGAs

Body weight2
• Increased risk of weight gain2

Dyslipidemia2
• Increased total cholesterol, triglycerides and LDL, decreased HDL2

Glucose dysregulation3
• Increased insulin resistance, glucose intolerance and enhanced insulin resistance3

Obesity4
• Increased risk of type II diabetes mellitus, obesity, cardiovascular disease and metabolic syndrome4

Objective
To review the existing data on treatment-emergent weight gain and its management in Taiwanese patients

METHODOLOGY

Fig 2: Summary of Studies Reviewed

RESULTS

Table 1: Obesity in Schizophrenic Outpatients Receiving SGAs in Taiwan

<table>
<thead>
<tr>
<th>Patients, n (%)</th>
<th>Baseline</th>
<th>Week 2</th>
<th>Week 4</th>
<th>Week 6</th>
<th>Week 8</th>
<th>Week 10</th>
<th>Week 12</th>
<th>Week 14</th>
<th>Week 16</th>
<th>Week 18</th>
<th>Week 20</th>
<th>Week 22</th>
<th>Week 24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes in BMI (kg/m²)</td>
<td>-1.0</td>
<td>-1.0</td>
<td>-1.0</td>
<td>-1.0</td>
<td>-1.0</td>
<td>-1.0</td>
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<td>-1.0</td>
</tr>
</tbody>
</table>

Fig 3: SGAs and Weight Gain

A. Treatment-emergent Weight Gain with SGAs in Taiwanese Studies

B. Weight Gain May Plateau After 3rd Weeks in Olanzapine-treated Patients with Schizophrenia22

C. Early Identification of Patients with Schizophrenia at Risk for Substantial Weight Gain on Olanzapine22

Fig 4: Predictors of Weight Gain

A. Initial Antipsychotic Response to Clozapine and Long-term Weight Gain21

B. Comparison of Change in Weight with Response to Clozapine22

C. Effect of Baseline BMI on Course of BMI Change with Clozapine22

Fig 5: Management of Treatment-emergent Weight Gain

Weight Gain Risk Factor Checklist Upon Initiation of Antipsychotics16
At baseline
• Younger age
• Male gender
• Low baseline body mass index
• Non-Caucasian
• Risk patient insight
• Eat until feeling full
• Poor eating habits

At 3rd week after treatment initiation
• Increased appetite
• High energy intake
• Diagnosis of undifferentiated schizophrenia
• Other medical comorbidities
• Poor patient insight
• Eat until feeling full
• Poor eating habits
• Suppressed baseline body mass index

Fig 6: Non-pharmacological Interventions

A. 10-week Weight Control Program23
B. 6-month Diet and Physical Activity Program24
C. WCC 10-week Weight Control Program24

Fig 7: Pharmacological Interventions

A. Metformin Use to Address Changes in Metabolic Parameters During Olanzapine Treatment26
B. Fluoxetine Inhibits Clozapine-related Weight Gain22
C. Switching to Atypical Antipsychotics Reduced Weight Gain22
D. Management of Treatment-emergent Weight Gain by Topiramate22

Limitations
• Non-pharmacological interventions
  – High cost and safety issues27,28
  – Long-term adherence required29
  – Lack of motivation30
  – Suppression of appetite for long-term difficult31
• Pharmacological interventions
  – Economic burden of adding another drug32
  – Risk of adverse effects33
  – Risk of potential drug interactions33
  – Chances of disease relapse34

CONCLUSIONS

• Patients treated with any antipsychotic agents, including olanzapine, should be observed for weight gain, lipid alterations, signs and symptoms of hyperglycemia and patients with diabetes mellitus or with risk factors for diabetes mellitus should be monitored regularly for worsening of glucose control and alterations should be managed as clinically appropriate
• Appropriate clinical monitoring is advisable in accordance with utilised antipsychotic guidelines
• Weight gain is associated with SGAs as evidenced by Taiwanese studies
• Weight gain in Taiwanese patients with schizophrenia treated with SGAs can be successfully managed by non-pharmacological and pharmacological interventions
• The results of the Taiwanese studies are in agreement with global studies

References