

Report

The effects of a life-Style improvement program for psychiatric patients

Tomohisa SHIBUYA*, Ryo KONNO**, Mieko MORI***,
Harumi MURAYAMA***, Fumiko ANBO***, Mayumi IMANI***,
Kimiko MATSUDA***, Takeshi SASSA*** and Kunihiko ASAI***

1. Introduction

Weight gain and obesity are serious problems among psychiatric patients who are taking antipsychotic medication as they tend to have communication disabilities, which can lead to social withdrawal and a less active life-style.

Antipsychotic medications, such as olanzapine, are often prescribed to treat psychiatric symptoms. In addition, these medications have been shown to be effective in treating the positive symptoms and negative symptoms of psychosis such as schizophrenia¹⁾⁷⁾. Moreover, there are some researches that these medications are effective in treating the cognitive dysfunction of schizophrenia⁴⁾⁵⁾.

However, these medications have the side effect of weight gain. Since atypical antipsychotics serve as a main medicine of pharmacotherapy in schizophrenia in recent years, obesity and weight gain, which are medicinal side effects, have become an important clinical concern. Moreover, weight gain can lead to various life-style-related illness such as cardiovascular disease, hypertension, diabetes and so on.

To change their life-style and prevent from getting overweight, we conducted a life-style improvement program as an educational intervention for psychiatric patients who are taking antipsychotic medication and evaluated its effects.

2. Methods

2.1 Subjects

Fifteen psychiatric patients who are under our day hospital treatment were selected as subjects for the present study. Fourteen of the fifteen patients were diagnosed as schizophrenic and one was diagnosed as having mental retardation based on ICD-10. Six of them are male, and the mean age of the fifteen is 45.38 ± 11.65 . All but one, with the diagnosis of mental retardation, is under antipsychotic medication. This study was performed with the permission of the ethical committee of ASAI hospital, and with agreement of the subjects and their doctors. After getting the written content, we encouraged them to participate in the life-style improvement program. Basic information of the subjects is shown in Table 1.

2.2 Procedure

The subjects were those who were interested in this program, and those for whom reduction in weight is needed. The subjects' weight, waist circumference, amount of visceral fat, T-Cho (total cholesterol), HDL-Cho (high-density lipoprotein cholesterol), LDL-Cho (low-density lipoprotein cholesterol), TG (triglyceride) and BS (blood sugar) were examined at baseline and at the end of this program. We took blood sample several hours after lunch.

* 医学部公衆衛生学講座研究生 Department of Public Health, School of Medicine

** スポーツ健康科学部非常勤助手 School of Health and Sports Science

*** 医療法人静和会浅井病院 ASAI Hospital

Table 1 Basic Information of Subjects (N=15 ; M=6, F=9)

| | Age | Height | Weight | BMI |
|------|-------|--------|--------|-------|
| Mean | 45.38 | 161.54 | 76.26 | 29.18 |
| SD | 11.65 | 10.92 | 13.35 | 3.81 |

ICD-10 diagnosis: Schizophrenia 14, Mental

Table 2 Analysis of the Physical and Biochemical Indices (N = 13)

| | | Mean (SD) | t | P |
|---------------------|----------|----------------|------|-------|
| weight | Baseline | 76.26 (13.35) | .12 | n.s. |
| | Endpoint | 76.17 (13.22) | | |
| waist circumference | Baseline | 93.62 (10.33) | .67 | n.s. |
| | Endpoint | 93.04 (9.86) | | |
| visceral fat | Baseline | 60.14 (30.14) | .63 | n.s. |
| | Endpoint | 58.57 (29.66) | | |
| T-Cho | Baseline | 192.92 (41.87) | 1.50 | n.s. |
| | Endpoint | 181.46 (41.95) | | |
| HDL-Cho | Baseline | 46.54 (12.55) | .77 | n.s. |
| | Endpoint | 44.92 (12.80) | | |
| LDL-Cho | Baseline | 118.08 (34.20) | 2.11 | < .10 |
| | Endpoint | 104.31 (31.03) | | |
| TG | Baseline | 175.69 (81.92) | .26 | n.s. |
| | Endpoint | 178.92 (92.87) | | |
| BS | Baseline | 125.00 (24.57) | 2.14 | < .10 |
| | Endpoint | 106.77 (22.28) | | |

A life-style improvement program was conducted for about three months (12 weeks). This consisted of a nutritional and health education class (once a week), a healthy meal cooking class (once every 2 weeks) and a physical exercise class (4 times a week). Each class was group-based.

The design of the life-style improvement program was based on the Japanese version of "Solutions for Wellness" modules⁶⁾ offered by Eli Lilly Japan K. K.. The nutritional education class, the health education class and the healthy meal cooking class, excluding the physical exercise class, were carried out in the psychiatry day hospital as a special program.

In the nutritional education class, subjects learned about the correct knowledge of healthy eating styles, etc. In the health education class, they learned about the harmful influences of obesity and weight gain and the mechanisms of diabetes, hyperlipidemia, etc. In the physical exercise class, they learned about the effect of exercise on health, the importance of continuing such exercise and so forth. Furthermore, in the physical exercise class, walking, jogging, stretching, resistance training, tennis, volleyball, etc. were actually performed. Each group session lasted 60-120 minutes.

2.3 Measurements and Data Analysis

Every data (waist circumference, amount of visceral fat, T-Cho, HDL-Cho, LDL-Cho, TG, and BS) of baseline and those at the point of the post session were statistically compared and analyzed using a two-tailed paired t test. Furthermore, in all tests, P values of less than .05 were considered significant, and those of less than .10 were considered to represent significant tendencies.

3. Results

Thirteen of the fifteen subjects completed this program, while two subjects did not complete due to their unstable psychological condition. Statistically significant improvement was not seen in all items. A significant tendency was seen in LDL-Cho ($t_{(13)} = 2.11, P < .10$) and BS ($t_{(13)} = 2.14, P < .10$). Weight, waist circumference, the amount of visceral fat, T-Cho and HDL-Cho were also showed improvement tendencies, but statistically not significant (see Table 2).

4. Discussion

The results of this study suggest that psychiatric patients are able to benefit physically from a life-style improvement program. Patients with mentally handicapped enrolled in the life-style improvement program showed a significant tendency to reduce their LDL-Cho and BS from baseline to endpoint and also showed an improvement tendency (although not statistically significant) in weight, waist circumference, the amount of visceral fat, T-Cho and HDL-Cho. Some research shows similar results with us in terms of weight or body fat, BMI, etc²⁾³⁾⁸⁾. The changes, as mentioned above, are very important from a clinical perspective.

However, unlike previous researches, no statistical differences were revealed in this study. One of the reasons is that the execution period of the program (3 months) was very short compared with that of the intervention of previous researches (6–12 months). For example, Menza M. and others carried out group sessions, including the teaching of basic nutritional principles and participation in an aerobic walking exercise for 12 months³⁾. In order to ensure the sufficient effects of this program, a longer period of execution will be needed. It is also suggested that a short execution period of intervention fail to induce sufficient behavior modification, either.

Moreover, we should consider how to improve their motivation to participate in physical exercise. We have the impression that jogging, resistance training, and stretching are not attractive physical exercises for subjects to participate, merely because the purpose of these exercise may be regarded as the compulsive weight reduction.

In other words, although weight loss was the goal, it is not “attractive” enough a goal to induce action. As an example of the above-mentioned positive occurrences, they participate positively in sports such as volleyball or tennis. The intrinsic, attractive goal of skill enhancement exists in sports, which can be explained by the Intrinsic Motivation Theory of motivation. Based on the above, it was considered important to ensure the goal setting was an attractive one.

While the results of this study are very encouraging, there are several limitations. The subjects in this study were not randomly assigned, and it is possible that there was a selection bias in favor of those persons with mentally handicapped who were interested in managing weight gain.

5. Conclusions

This study suggests that many psychiatric patients will gain considerable benefit toward maintaining a good physical state of health from a life-style improvement program which includes educational group sessions. A larger randomized trial that examines a variety of issues, including cost-effectiveness, is warranted. We believe that special attention to the risk factors of life-style related illness in this population is very important, and wish such educational intervention in life-style improvement to be part of psychiatric rehabilitation.

Acknowledgements

This work was supported by the ASAI hospital medical staff and Eli Lilly Japan K. K, to whom we wish to express our gratitude.

References

- 1) Gomez, JC., et al. (2001) Superior efficacy of olanzapine over haloperidol: analysis of patients with schizophrenia from a multicenter international trial. *J Clin Psychiatry*, 62: 2, 6–11.
- 2) Littrell, KH., Hilligoss, NM., Kirshner, CD., Petty, RG., Johnson, CG. (2003) The effect of an educational intervention on antipsychotic-induced weight gain. *Journal of Nursing Scholarship*, 35: 3, 237–241.
- 3) Menza, M., Vreeland, B., Minsky, S., Gara, M., Rigassio, Radler D., Sakowitz, M. (2004) Managing atypical antipsychotic-associated weight gain: 12-month data on a multimodal weight control program. *J Clin Psychiatry*, 65: 4, 471–477.
- 4) Meltzer, HY., et al. (1999) The effects of clozapine, risperidone, and olanzapine on cognitive function in schizophrenia. *Schizophr Bull* 25, 233–255.
- 5) Purdon, SE., et al. (2000) Neuropsychological change in early phase schizophrenia during 12 months of treatment with olanzapine, risperidone, or haloperidol. *Arch Gen Psychiatry*, 57, 249–258.
- 6) Ono, Y., Nakagawa A. (2004) *SFW (Solutions for Wellness) program Japanese version*. Kobe: Eli Lilly Japan.
- 7) Tran PV., et al. (1997) Doubleblind comparison of olanzapine versus risperidone in the treatment of schizophrenia and other psychotic disorders. *J Clin Psychopharmacol*, 17: 5, 407–418.
- 8) Vreeland, B., Minsky, S., Menza, M., Rigassio, Radler D., Roemheld-Hamm, B., Stern, R. (2003) A program for managing weight gain associated with atypical antipsychotics. *PSYCHIATRIC SERVICES*, 54: 8, 1155–1157.

(平成18年10月10日 受付)
(平成18年12月20日 受理)