Association between employment outcomes and symptomatic remission in chronic patients with schizophrenia

1. Background

Schizophrenia is a group of disabling multidimensional brain diseases characterized by positive and negative psychotic symptoms, including delusions, hallucinations, disorganized behaviors, blunted affect, reduced motivation, poor communication and declined global function (Saha, Chant et al. 2005, Bhugra 2006, Robert Rosenheck, Douglas Leslie et al. 2006). In addition, schizophrenia is a severe mental disease with a chronic course, frequent relapse, and function deterioration in many domains, i.e., declined psychosocial and occupational function (Sadock, Sadock et al. 2009). From the perspective of providing effective long-term care and obtaining recovery of schizophrenia, the potential utility of a consensus criteria of symptomatic remission which delineate a well-defined outcome goal, can foster comparisons of effectiveness across treatment modalities and facilitate the development of appropriate psychosocial, pharmacological therapies and rehabilitation programs (Andreasen, Carpenter et al. 2005).

For aforementioned reasons, the consensus-based criteria for symptomatic remission in schizophrenia, published by the Remission in Schizophrenia Working Group (RSWG) in 2005, are used to classify patients with schizophrenia according to the severity of psychopathology. Andreason and colleagues had initially defined symptomatic remission in schizophrenia as patients having eight core symptoms of a low severity level over a period of at least 6 months (Nancy C. Andreasen, William T. Carpenter et al. 2005). In the past decade, s number of studies used the RSWG remission criteria to explore the prognosis of patients with schizophrenia. For example, a study using RSWG remission criteria and enrolling 243 schizophrenia
patients found those with symptomatic remission had better daily activities, social interaction and less consumption of health care in comparison with those without symptomatic remission (Helldin, Kane et al. 2007).

Though a lot of studies explored the association between symptomatic remission and relapse, readmission rates, quality of life, daily activities, and use of health care, few studies investigated the relationship between symptomatic remission and employment outcomes. In fact, patients with schizophrenia who were employed consume a lower amount of medications, have lower negative symptom severity and lower excitement symptom severity, and tend to achieve better global functioning (Helldin, Kane et al. 2007, Marchesi, Affaticati et al. 2014, Valencia, Fesban et al. 2015). Overall, employment status is considered a crucial predictor of better functioning for patients with psychotic disorders (Helldin, Kane et al. 2007).

Thus, the aim of this study was to explore the association between symptomatic remission and employment outcomes, i.e., wages and tenure of job with adjustments for related confounders, such as IADL, ADL, and cognition in schizophrenia patients.

2. Methods

2.1. Participants

All patients who had received a diagnosis of schizophrenia according to the diagnostic criteria defined by the Diagnostic and Statistical Manual of Mental Disorders, Text Revision, Fourth Edition and were hospitalized in a mental health institution in eastern Taiwan between January 2013 and December 2015 were considered to be invited into this study. Only patients who were identified as medically stable, and joined the occupational rehabilitation program in the therapeutic community were enrolled. We excluded those who had an acute
psychotic episode requiring transfer to psychiatric wards or those who had an unstable medical illness.

2.2. Measurements of independent variables and outcomes

All patients who signed the informed consent underwent an initial evaluation for symptomatic remission and 1- and 2-year follow-up assessments regarding the course of symptom changes and employment outcomes. Demographic data, including age, sex, education, age at schizophrenia onset, and types and defined daily dose of antipsychotics on recruitment were abstracted from the medical records of the patients. Clinical data, including the scores on the Positive and Negative Syndrome Scale (PANSS), Mini-Mental State Examination (MMSE), and BADL and IADL scales were also collected at initial evaluation. Employment outcomes, defined as the cumulative on-the-job duration (months/per year) and income (NT$/per year), were determined in the first and second year after enrollment in this study. We also evaluated BADL and IADL functional states at initial recruitment and the end of the 1-year and 2-year follow-ups.

Symptomatic remission was evaluated by 4 board certified psychiatrists using the medical criteria published by the RSWG in 2005.

2.3 Statistical analysis

For repeated measurements within individual patients, the determinants of employment outcomes were investigated using a mixed-effects model analysis. Potential covariates, including symptomatic remission, age, sex, education, type and daily dose of antipsychotics, cognitive function, and initial employment type were controlled.

3. Results
The majority of the patients were men (65.3%). The average age of the patients was 51.8 years. A total of 124 patients (23.6%) met the remission criteria at baseline. The remission group differed significantly in terms of age, sex, education, age at schizophrenia onset, PANSS, ADL, IADL, and MMSE scores, defined daily dose of antipsychotics, and initial employment type, but not in the antipsychotic type.

At the end of the 1-year follow-up, 214 of the 525 (40.8%) patients had a cumulative employment duration of ≥6 months within the first year after recruitment. After controlling for related confounders, the annual cumulative employment duration and income were significantly associated with symptomatic remission (p < 0.05). The linear mixed model analysis showed that the patients who had symptomatic remission were employed 0.64 of a month longer and earned NT$2,701 more within 1 year than was the case for patients who did not show symptomatic remission. The cumulative employment duration and income significantly differed among initial employment types in 1 year. On an average, the patients who had received supported employment had a higher mean cumulative employment duration (8.61 months) and income (NT$10901.8) than did the patients who participated in a workshop (p < 0.001).

4. Conclusion

After controlling for major potential confounders, employment outcomes in patients with schizophrenia were associated with functional improvement. Assessing symptomatic remission status and IADLs would be useful as a part of monitoring treatment effectiveness for patients with schizophrenia. Once they are stable, a therapeutic community with supported employment would be helpful for obtaining a long-term employment outcome.