Early intervention versus standard care for psychosis in Hong Kong: a 10-year study

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KEY MESSAGES

1. Psychotic patients who received early intervention had longer periods of employment, fewer hospitalisations, more time in symptomatic remission, fewer suicidal attempts and violent acts, and lower mortality over a 10-year period.
2. Early intervention improved the longitudinal outcomes of psychosis. Nonetheless, symptomatic remission and recovery rate did not differ significantly at 10 years between patients with early intervention and patients with standard care. Early intervention did not alter the symptomatic trajectory of schizophrenia-spectrum disorders.
3. Re-examination of the optimum duration of early intervention should be considered.

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Introduction

Psychotic disorders are a major burden to society and public health, affecting 3% of the population. Compared with standard care (SC), early intervention (EI) enables better outcomes in terms of symptom control and functioning.[1] In 2001, the Hong Kong Hospital Authority launched the 2-year Early Assessment Service for Young People with Early Psychosis (EASY) for those aged 15 to 25 years. Compared with SC patients, patients with EASY had fewer hospitalisations and better functional outcome at 3 years.[2]

Both Danish and British trials suggested that patients who received EI (vs SC) for 2 years did not differ in clinical and functional outcome 5 years later, although the former study suggested that patients with EI had fewer days of hospitalisation and less time living in supported housing.[3,4] In a study of a 2-year EI programme in Ontario, Canada, the clinical and functional benefits remained at 5 years.[5] Longer-term effects of EI are not well known. In another Danish study of the effect of early detection (shortening duration of untreated psychosis), more early-detection patients had recovered functionally at 10-year follow-up, compared with usual-detection patients.[6] In an Australian study, patients with EI achieved better symptomatic remission at 8-year follow-up.[7] These inconsistent findings have raised doubt about the longevity of the effects of EI. More longer-term studies are needed.[8]

The current study compared the 10-year outcome of psychotic patients (with a focus on the schizophrenia spectrum) who received 2-year EASY versus SC in terms of symptomatology, social and role functioning, employment rate, hospitalisation, risk behaviour (including suicide), and service utilisation, using both face-to-face semi-structured interview and 10-year medical record review.

Methods

This study was conducted from June 2010 to September 2012. A historical control group was used because the EASY was implemented in 2001 in Hong Kong. The current study was based on a previous study that compared the 3-year outcome of patients (with a diagnosis of schizophrenia, schizoaffective disorders, acute and transient psychotic disorder, or psychosis not otherwise specified) who received EASY versus SC. Patients had to be able to communicate adequately with the investigator and agree to undergo all the assessments required by the protocol. Each group comprised 148 patients. The two groups were matched for gender, age, diagnosis, years of education, duration of untreated psychosis, premorbid occupational functioning, and mode of onset of illness.

Face-to-face semi-structured interviews were conducted at 10 years. Baseline and longitudinal variables[9-20] were systematically retrieved from medical records and the clinical management system (Table).

TABLE. Main outcome variables

Variables	Rating tools
Current situation	
Marital status	Patients' report
Residential status	Patients' report
Current health	
Diagnosis	Structured clinical interview for Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV)[9]
Diagnosed physical illness	Clinical management system
Comorbidity	Structured clinical interview for DSM-IV[9]
Treatment	
Antipsychotic medications	Medical records/clinical management system
Concomitant medications	Medical records/clinical management system
Use of clozapine	Medical records/clinical management system
Side effects	
Metabolic (weight, body mass index, waist-circumference)	Measured by researcher
Extrapyramidal side effects	Extrapyramidal symptom rating scale[10], and Udvalg for kliniske undersøgelser[11]
Functioning	
Employment status in the past 1 year	Patients' report
Social functioning	Social and occupational functioning assessment scale[12]
Role functioning	Role Functioning Scale[13]
Recovery	
A composite rating of symptom remission and functioning	Positive and negative syndrome scale for schizophrenia,[14] Strauss and Carpenter Scale[15]
Symptomatology	Positive and negative syndrome scale for schizophrenia, Scale for the assessment of positive symptoms,[16] Scale for the assessment of negative symptoms,[17] Calgary Depression Scale,[18] Clinical Global Impression-Schizophrenia Scale[19]
Quality of life	36-Item Short-Form Health Survey[20]
Hospitalisation	
No of hospitalisation from years 4 to 10	Patient's report, medical records/clinical management system
Nature and duration of each hospitalisation	Medical records/clinical management system
Risk	
Suicide attempt from years 4 to 10	Medical records/clinical management system
Mortality	
Time	Medical records/clinical management system
Cause	Medical records/clinical management system
Duration of disengagement	Medical records/clinical management system

Results

Longitudinal outcome

Over 10 years, EI patients had more time in symptomatic remission than SC patients (70.7% vs 64.2%). Controlling for the effect of medication, gender, age, and duration of untreated psychosis, group effect was significant ($F(1.292)=6.281$, $P=0.013$), with small effect (partial $\eta^2=0.021$). In addition, more EI than SC patients were able to achieve remission for 2 years consecutively (91.6% vs 79.1%, $\chi^2=9.620$, df=1, $P=0.003$). The mean number of admissions was significantly higher in SC than EI patients (2.00±2.71 vs 1.34±1.8, $Z=-2.41$, $P=0.016$), excluding the admission at onset. The group effect remained significant ($F(1.292)=5.011$, $P=0.026$), with small effect (partial $\eta^2=0.017$) after controlling for the effect of medication. The mean duration of admission was also longer in SC patients (146.6±251.9 days vs 112.4±257.4 days, $Z=-2.295$, $P=0.022$), but the group effect was not significant after controlling for the effect of medication duration ($F(1.293)=0.682$, $P=0.410$).

Over 10 years, more SC patients attempted

suicide or committed violent acts after controlling for the effects of age, gender, duration of untreated psychosis, and medication, with a small effect on the total number of suicidal attempts ($F(1.290)=8.818$, $P=0.003$, partial $\eta^2=0.030$) and violent acts ($F(1.290)=6.569$, $P=0.011$, partial $\eta^2=0.022$), suggesting a benefit of EI. In addition, more SC than EI patients died over the period (16 vs 7), with suicide being the main cause. Survival analysis Mantel-Cox Log Rank tests showed that SC patients died earlier than EI patients ($X^2(1)=4.016$, $P=0.045$).

Over 10 years, duration of full-time employment was significantly longer in EI than SC patients (45.5 vs 36.6 months, $Z=-2.618$, $P=0.009$), as was part-time employment (61.9 vs 49.1 months, $Z=-2.954$, $P=0.003$). Controlling for the effect of medication, years of education, and mode of onset, the group effect remained significant ($F(1.292)=9.446$, $P=0.002$), with small effect size (partial $\eta^2=0.032$). From a longitudinal perspective, EI patients sustained better functioning (Fig).

The two groups did not differ significantly in the number of relapses and time to first relapse, although more SC patients relapsed and were hospitalised than EI patients (1.45 vs 1.05 times, $Z=-2.495$, $P=0.013$). The SC patients also had more presentations to accident and emergency departments ($Z=-2.162$, $P=0.031$) and more contacts with the community psychiatric nurse ($Z=-2.154$, $P=0.031$), but EI patients had more outpatient attendances ($Z=-4.171$, $P<0.0001$) and contacts with the clinical psychologist ($Z=-2.116$, $P=0.034$).

Cross-sectional outcome

The success interview rate was 70.3% (104/148) for the SC group and 74.3% (110/148) for the EI group. At 10-year follow-up, the two groups did not differ significantly in psychotic symptom dimensions (measured with the positive and negative syndrome scale for schizophrenia, the scale for the assessment of positive symptoms, and the scale for the assessment of negative symptoms) and clinical remission rate (56.5% vs 55%). However, EI patients had significantly fewer depressive symptoms (measured with the Calgary Depression Scale). Controlling for the effect of medication, the group effect remained significant ($F(1.207)=6.872$, $P=0.009$), with small effect ($\eta^2=0.032$).

At 10 years, more EI patients engaged in full-time employment and more SC patients were unemployed. Using logistic regression to control for the effect of medication, years of education, and mode of onset, the group effect was significant (odds ratio=2.036, 95% confidence interval, 1.083-3.830; $P=0.027$). The two groups did not differ significantly in social and role functioning (measured with the social and occupational functioning assessment scale, the Role Functioning Scale, and the Strauss and Carpenter Scale), the functional recovery rate (25.5% vs 33.7%), quality of life, or side effects.

Discussion

Patients with EI had a longer period of employment, better vocational functioning, fewer hospitalisations, more time in symptomatic remission, less depression, fewer suicidal attempts and violent acts over 10 years. The beneficial effect of EI on mortality and suicidal rate has public health implications. The lack of a significant difference in symptomatic remission and recovery rate between groups at 10 years suggests that EI may not change the trajectory of psychotic symptom dimensions in patients with schizophrenia-spectrum disorders. Together with the evidence that suggests the critical period of

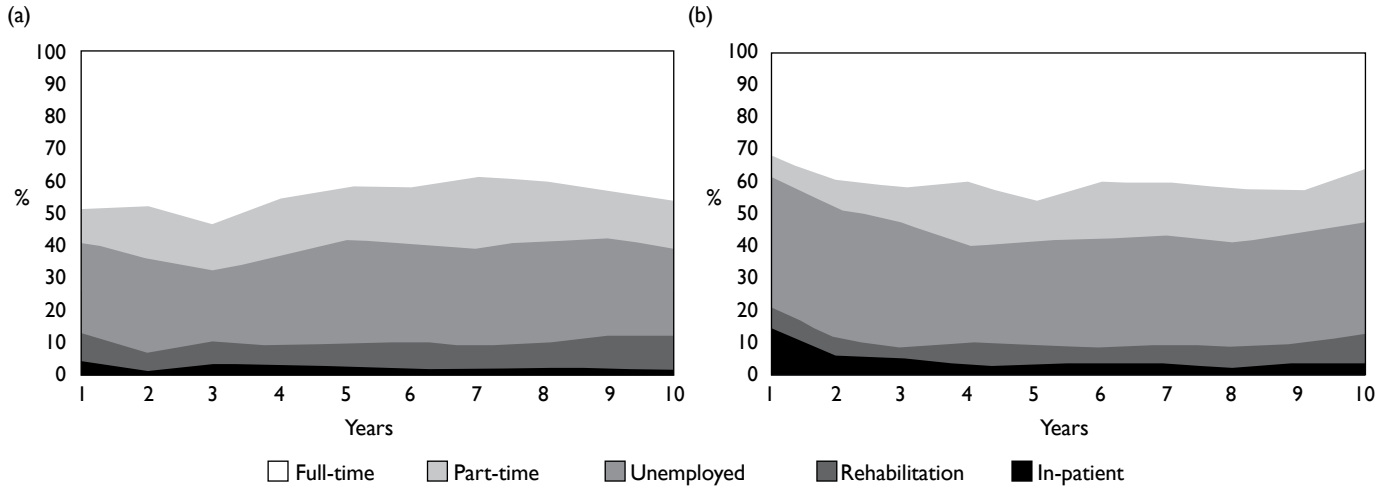

FIG. Occupational functioning of patients receiving (a) the 2-year Early Assessment Service for Young or (b) standard care over 10 years.

psychosis can be up to 5 years following initial onset, the optimum duration of intensive early intervention should be re-examined. More detailed investigation of the effective components of EI is needed to enable better service configuration. A full-scale health economic study would inform future policy development.

There were some limitations to this study. The longitudinal results relied on medical record review. Despite efforts to ensure reliability and validity, the quality of data was limited by the quality of the medical records. The time of transfer from EI to SC was assumed to be 3 years following initiation. Individual differences were not routinely documented. Although the attrition rate of this study was comparable with that of other long-term studies, the non-response rates may limit the reliability and generalisation of the cross-sectional outcome. Demographics of the responded and non-responded patients did not differ significantly. Blinding of group status during interview was not possible. Therefore, the possibility of interviewer bias cannot be eliminated. The territory-wide provision of EI precluded other forms of study design, and the historical controlled design was limited by the potential cohort effect. This was minimised by choosing samples in close temporal proximity.

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