PSYCHIATRY

Early Intervention in Psychosis: Efficacy of the Screening Program

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ABSTRACT

Aims: **To screen and detect individuals at ultra high risk (UHR) for psychosis and evaluate the efficacy of a screening program**

Methods: **This is a two-stage study involving relatives of patients with schizophrenia. The first degree relatives were screened with the GHQ-12 and non-first degree relatives were additionally screened with the self-constructed screening questionnaires (SQ). All the positive subjects from the initial screening will be proceeded to the second stage screening.**

Results: **Fifteen (13.5%) of 111 subjects were positive in the first stage. After the second stage screening, only 3 (2.7%) were positive (UHR subject). Two (2.6%) cases were first degree relatives and the other one (3%) was non-first degree relatives. Although the majority of the positive subjects in the initial screening were detected through the GHQ-12, only one of them was positive in the second stage.**

Conclusion: **Screening of genetic risk relatives of schizophrenia is feasible. The detection rate of subject at UHR was much lower than expected, especially among first degree relatives. The higher detection rate among non-first degree relatives is contributed by the addition of the SQ. The GHQ-12 is not suitable for screening in early psychosis; it should be combined with other screening instruments.**

KEY WORDS

early psychosis, early intervention, prodromal symptoms, schizophrenia, GHQ

INTRODUCTION

Some patients with schizophrenia begin with a prodromal or pre-psychotic state of altered functioning or symptomatology before the onset of frank psychosis[1,2]. The researchers viewed the prodromal period as potentially important from a preventive aspect. Recent studies[3,4] showed that the first episode of schizophrenia is a critical therapeutic opportunity. If patients are treated promptly and effectively, good outcome can be achieved. Longer delays in treatment have been hypothesized to have neurotoxic effects resulting in greater and irreversible deterioration in brain function which is manifested clinically as greater treatment resistance and loss of function[5]. Thus, shortening of duration of untreated psychosis (DUP) is critical in determining good prognosis

An Australian group from the Personal Assessment and Crisis Evaluation (PACE) clinic in Melbourne introduced the 'At-Risk Mental State (ARMS)', implying that certain sub-threshold syndrome can be regarded as a high risk factor for the development of psychosis, but that the onset of psychosis is not inevitable[6,7]. They then developed the Comprehensive Assessment of At-Risk Mental State (CAARMS), a semi-structured interview designed to measure a wide variety of prodromal symptoms[8]. By combined various risk and vulnerable factors with ARMS, they are able to identify subjects at ultra high risk (UHR). The UHR individuals are at high risk for psychosis within a brief time period (12 months), in contrast to the traditional approach that employs a much longer follow-up period. Several studies[9,10] conducted in recent years revealed that these UHR subjects yielded a conversion rate of 30-50%.

A local study[11] found that the DUP among patients with first episode psychosis was 159 weeks (nearly 3 years), as compared with first episode psychoses worldwide which was 1 to 2 years[12,13]. Among the solutions to the prolonged DUB is detection the subjects at UHR and giving them early treatment. The objectives of this study were to screen the relatives of patients with schizophrenia and assess the

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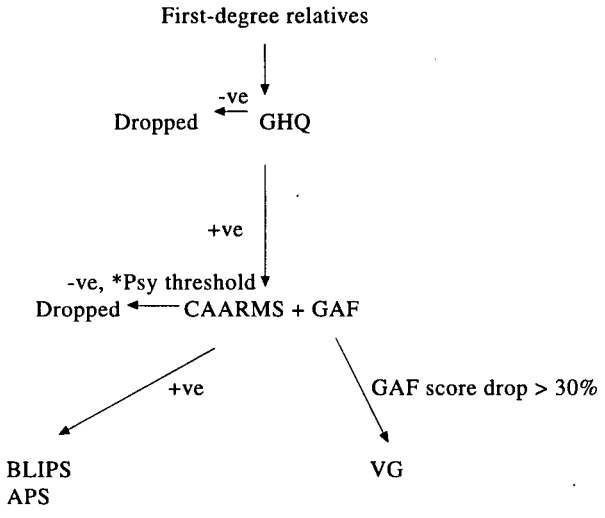

Figure 1a. Flow chart of the screening of first-degree relatives
*** The CAARMS scoring exceeds psychotic threshold**

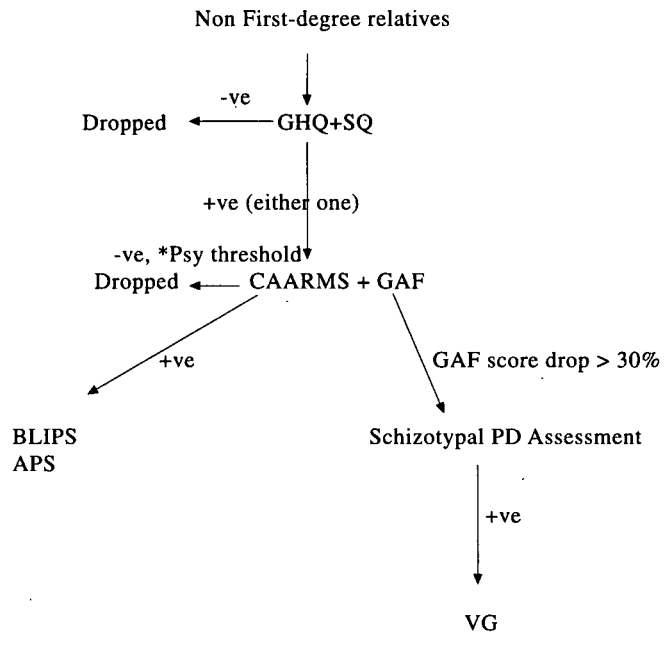

Figure 1b. Flow chart of the screening of non-first-degree relatives
*** The CAARMS scoring exceeds psychotic threshold**

efficacy of the screening procedure. Schizophrenia is a highly familial disorder that is strongly affected by genetic influences. The first degree relatives of individuals with schizophrenia are nearly 10 times more likely to be affected with schizophrenia than are comparison subjects[14].

METHODOLOGY

Selection of the sample

This is part of a larger study on the screening of genetic risk relatives of schizophrenia. This region is less developed as compared with other part of the country. More than 90% of the populations live in rural areas. The study was approved by the Research and Ethical Committee (Human) of USM. This is a convenience sampling of generic risk individuals involving relatives of patients with a known (confirmed) case of schizophrenia (DSM-IV-TR)[15] between 13 to 30 years old. The relatives were detected and interviewed by a research assistant (RA) when they accompanying the patients to the psychiatric clinic or visited them in the ward. Others family members was then contacted and arranged for the interview at home with the assistance of community Mental Health Team (CMHT). The study subjects were divided to two groups; the first degree and non-first degree relatives (second degree and first cousin). First and non-first degree relatives were assessed differently (Figure 1a and 1b).

Assessment

Preliminary Screening

The subjects were excluded if they

a) declined to sign informed consent form
b) had been treated for psychotic illness or were being treated with antipsychotics
c) had co-morbid substance abuse, mental retardation or organic conditions

The preliminary (first stage) screening was conducted by the RA. All the selected subjects (first and non-first degree relatives) were screened with the General Health Questionnaire (GHQ-12)[16]. The questionnaire was translated to Malay (*Bahasa Malaysia*) and validated prior to the study. The cut-off point was 3. At the cut-off point the sensitivity and specificity was 64.5% and 90.3% respectively. The non-first degree relatives were additionally screened with the Self-Constructed Screening Questionnaire (SQ) (available on request)). This consisted of 10 validated questions in Malay to detect psychotic symptoms. The questions were modified from criteria A for schizophrenia (DSM-IV-TR)[15] and Schneider's First Rank Symptoms. The cut-off point was 2 with a maximum score of 10. The validation study conducted before that found the sensitivity and specificity at the cut-off point was 77.5% and 93.5% respectively.

Second Stage Assessment

All subjects who scored at or above the cut-off point proceed to the second stage. The second stage screening was conducted by the research psychiatrists using the CAARMS[8]. If positive symptoms were detected (disorders of thought content, perceptual abnormalities and disorganized speech), further exploration was required to assess the severity, frequency and duration of the symptoms. The subjects were dropped from the study if they reached psychotic threshold as defined in the CAARMS[8] (Figure 1a and 1b).

The positive subjects were classified into one of three operationally define UHR sub-group[8]:

a) Brief limited intermittent psychotic symptoms

Table 1. The GHQ score of first and non-first degree relatives; and the SQ score of non-first degree relatives

Score	GHQ (n = 78)	GHQ (n = 33)	SQ (n = 33)
0	47	19	17
1	14	4	12
2	9	6	2
3	2	2	0
4	1	1	1
5	2	0	0
6	0	0	1
7	2	1	0
12	1	0	-

Table 2. No of positive cases after first and second stage screening

Screening instruments	Preliminary screening	Second stage screening (UHR)	Detection rate (%)
GHQ	11	1	9.1
SQ	3	1	33.3
GHQ + SQ	1	1	100

(BLIPS)
b) Attenuated psychotic symptoms (APS)

Further assessment with GAF for both groups of relatives and the schizotypal personality disorder (PD) check list[15] for non-first degree relatives were conducted to determine the third sub-group of UHR:

c) Vulnerable group (VG)

All the positive subjects were followed up by the Community Mental Health Team.

RESULTS

Preliminary Screening

A total of 111 subjects formed the final sample; 78 (70.3%) were first degree relatives, while 33 (29.7%) were non-first degree relatives. All the subjects were ethnic Malays. The majority were between 18-25 years old. Among the first degree relatives, 90% were siblings to the patients; the others were daughters or sons. None of the parents were included due to age limit. Among non-first degree relatives, a large proportion was niece/nephew to the patients, followed by first cousin.

Distribution of GHQ and SQ score

There were 12 (10.8%) subjects who scored 3 and above on the GHQ; of these 8 were first-degree relatives and the others were non-first degree relatives. Regarding the SQ, only 4 (12.1%) had a positive score. Out of these, 1 subject had both positive GHQ and SQ. The detail of the scores was shown in Table 1.

Second Stage Assessment

A total of 15 (13.5%) subjects entered the second stage screening through the combination of various criteria (Table 2). The majority had positive GHQ. Out of 15 positive subjects, 9 (60%) were first degree relatives and the other 6 were non-first degree relatives. There was no significant difference between the number of first and non-first degree relatives who proceeded to the second stage screening ($\chi^2 = 0.553$, df = 1, $p < 0.10$). After final assessment, only 3 of them were positive and considered as UHR individuals. Analysis case by case of the 3 UHR individuals revealed that 2 (2.6%) subjects were first-degree relatives (sibling and son) and another one (3%) was non-first degrees relative (nephew). Two cases could be classified as APS, while the other case was a sub-group of BLIPS. One of the subjects with APS also met the criteria of VG.

DISCUSSION

Schizophrenia is found in all societies and geographical area, the incidence and prevalence rates are roughly equal worldwide. About 8% of sibling and 5% of parents of a schizophrenic individual will have schizophrenia compared to approximately 1% in the general population. Children of schizophrenic individuals have about 12% chance of developing schizophrenia. The prevalence of the illness in second degree relatives ranges between 2-4%, while among the first cousin (third degree relatives), it is approximately 2%, slightly higher than general populations[14,17]. Thus, we expect to detect a higher percentage of first degree than non-first degree relatives; however, the opposite was found in this study. The lower rate of detection among first degree (2.6%) relatives as compared with non-first degree relatives (3%) needs further exploration.

The GHQ-12 was not effective as the SQ in detecting subjects at UHR. We postulated that a better detection rate

among non-first degree relatives was related to the combination of the GHQ-12 with SQ, which will improve the detection rate. Nearly the same conclusion was reached by Donath[18], that in Australia the GHQ-12 appears to be a less-useful instrument for detecting mental illness. We would like to recommend that the GHQ should be combined with other research/screening instruments in detecting subjects with early psychosis. The combination will improve detection rate. The results showed that the detection rate was higher if the subjects were positive in more than one screening instrument in the first stage; even reached 100% when they were positive in both the GHQ and SQ (Table 2). Retrospectively, we could have combined the GHQ-12 with the SQ for both first and non-first degree relatives in this study.

In Asian countries like Malaysia, stigma towards mental illness is still strong. The majority of patients with severe mental illness (SMI) attribute their illnesses to supernatural agents; witchcraft or possession by evil spirits[19]. People with SMI carry social stigma and the publics looks down on them and their families[20,21]. Those affected will have emotional distress and tend to withdraw from the public. In this situation the family may hide UHR individuals or prevent them from meeting the researchers, which contribute to the low detection rate of the potential cases. Other approaches such as consulting the community leader or head of the village prior to the visit may be effective to overcome this problem.

The major limitation of this study was the small sample size and less comprehensive assessment in the initial screening. With a bigger sample size we hope to detect greater numbers of subjects at UHR, analyze their characteristic features and assess the rate of progression to psychosis within a brief period of time. In Malaysia and other developing countries in Asia and Africa where the barrier to psychiatric treatment is high[22,23], it is essential to detect and bring psychiatric patients for earlier treatment. This is contrasted with patients in the developed countries where they are actively seeking for help or help seekers[23,24]. Although the detection rate of subjects at UHR was lower than expected, we feel that with the improvement in screening procedure, the screening program would be cost-effective in view of the expensive treatment for schizophrenia, even in a developing country such as India[25]. Since the screening procedure is simple; preliminary screening of genetic risk relatives, especially the first degree relatives could be conducted routinely by paramedical personnel in primary health care centre.

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