Abstract  The study describes the psychopathological and social outcome of patients treated for schizophrenia in adolescence (mean age at onset 16.0 years/SD 1.52) after a mean follow-up period of 15.4 years (10.2–21.2 years). Out of 55 patients consecutively admitted to hospital, 47 (85 %) could be traced and 39 (71 %) could be re-examined.

At follow-up, 33/39 patients (85 %) had had at least one readmission. Full remission of global psychopathological symptoms [Clinical Global Impression (CGI) ≤ 2] was found in 3/39 (8 %), a moderate outcome (CGI = 3–5) in 22/39 (56 %), and a poor outcome (CGI = 6–8) was seen in 14/39 (36 %). Severe or very severe impairments of global social functioning [Global Assessment of Social Function (GAS) < 51] were observed in 20/39 (51 %). The best predictor of global psychopathological and psychosocial outcome was type of onset (CGI: Beta = 0.36, GAS: Beta = –0.37). A poor outcome was seen in 22 out of 25 cases with insidious onset. All predictors together explained 58 % of the variance in the Positive and Negative Syndrome (PANSS) negative symptom ratings at follow-up. Gender, duration of first inpatient treatment and duration of untreated psychosis were of no predictive value for outcome. The nature of the diagnosis in the first episode strongly predicted the diagnosis given for the whole course after 15 years. In 26/37 cases (70 %), diagnosis at onset and overall diagnoses were the same. Our finding of an incidence of 61 % insidious onset is similar to that in adult onset schizophrenia (AOS), but different to very early onset schizophrenia (VEOS), which shows a higher rate of insidious onset, cognitive impairment and poor outcome. Therefore, it seems that VEOS is a special group compared with early onset schizophrenia (EOS) and AOS.

Keywords  early onset schizophrenia – adolescent onset schizophrenia – long-term follow-up – prediction – diagnostic stability

Introduction

There are more than 800 long-term follow-up studies on the course and outcome of schizophrenia (Hegarty et al. 1994), but most of them describe outcome after a relatively short follow-up period (mean 5.6 years), which is too short for a disorder with a chronic or relapsing course. Nearly all of these studies deal with adult onset schizophrenia (AOS).

A comparison of the long-term course of psychopathology in AOS and EOS shows few differences, but EOS may result in a significantly worse psychosocial outcome. An epidemiological study from Eaton et al. (1992) reported that an age of onset under 18 doubles the risk of re-hospitalization in a 3-year period after discharge. Lay et al. (2000) described the psychosocial outcome of EOS after 11 years. They reported 66 % with severe or very severe psychosocial impairment. This rate is significantly higher than in AOS. Thus, illness onset before the age of 18 years is a relevant predictor for psychosocial outcome.
There are also some differences between EOS and VEOS. More than 80% of children with schizophrenia showed premorbid dysfunction and an insidious onset compared with about 65% in EOS and adult onset in the studies of Eggers (1973) and Eggers and Bunk (1997). These authors described psychopathological symptoms that were somewhat different from AOS and EOS, for example, acoustic hallucinations that are relatively rare, and coenaesthetic disturbances which seem to occur more often in VEOS than in EOS. However, classification of schizophrenia in children according to DSM or ICD is more difficult than in adults, because children are less able to report subjective symptoms like hallucinations.

A further feature of the course of the illness is whether its nature remains qualitatively the same. Does the diagnosis remain the same and stable over time? Werry (1992) and McClellan et al. (1993) compared the initial diagnoses of schizophrenia in EOS according to DSM-III-R with the diagnoses 3.9 years later and found that only 50% matched, but Hollis (2000) could confirm initial diagnoses in 41 of 51 cases (80%) after 11.5 years for EOS.

The present study deals with the course and the outcome of adolescent onset schizophrenia (EOS). The characteristics of premorbid adjustment and of the initial phases of illness are analyzed for their potential as predictors for the outcome of EOS, and the predictive value of the first diagnosis of schizophrenia will be followed up and compared with that 15 years later.

Methods

**Subjects**

The sample consisted of all patients with a clinical diagnosis of a schizophrenic disorder (ICD-9) consecutively admitted to the Clinic for Child and Adolescent Psychiatry at the University of Essen between 1979 and 1988. Because of the partly unsystematic diagnostic procedures 20 years ago, we included patients with the diagnoses “acute schizophrenic episode (295.4), paranoid syndrome (297.0)” and “non organic psychosis not otherwise specified (298.X),” but affective psychoses (296.X) were not included.

Of these 55 patients, 8 could not be traced or were abroad (3 male/5 female), 4 of the patients and their relatives did not cooperate (1 male/3 female), and 2 of them had died at the time of follow-up. One girl died by suicide, and one boy died during inpatient treatment in a foreign hospital for unknown reasons. One female patient committed suicide during the first inpatient treatment. Of the remaining 42 patients (22 male/20 female), 3 had to be excluded after analysis of the hospital records, as the diagnosis at the index treatment did not coincide with the described symptoms. This left 39 patients in the study (gender male/female, 20/19, and mean age at first admission, 16.9 years; for the group of missing patients, gender male/female, 4/9, and mean age at first admission, 16.3 years). The distribution of the diagnoses schizophrenic, schizoaffective and schizophreniform disorder according to ICD-9 was at admission 31/4/4 and for the missing patients 9/2/2.

**Variables and assessment instruments**

Hospital records were reviewed by a self-constructed review chart. They consist of five sections: (i) General information (date of birth, gender, age at first admission, diagnosis at first admission, etc.); (ii) Information about the family (parents, siblings, socioeconomic status, etc.); (iii) Anamnestic data (pregnancy, birth, premorbid development, comorbidity, school achievement, etc.); (iv) Symptomatology on admission; and (v) Course of first inpatient treatment. The interrater reliability between two clinical psychologists and two child and adolescent psychiatrists was good (Kappas 0.60–0.95).

We applied the following instruments to assess nine domains of patient features, current and past clinical and psychopathological history. Premorbid adjustment between age 6 and 12 years was rated retrospectively based on hospital recordings and on interviews with patients and parents with the Modified Premorbid Adjustment Scale (MPAS) (Gupta et al. 1995). The scales about withdrawal, peer relationship and interests were rated from 0 to 10, and dichotomized into good (0–6) and poor (7–10) social adjustment. The number of first-degree relatives with psychotic or personality disorder (none vs. one or more) was obtained from the hospital records and semi-structured interviews with the relatives [Structured Clinical Interview for DSM-IV Axis-II (SCID): for psychotic or cluster A Personality Disorder]. Psychiatric disorders in relatives were rated in two steps: (i) by analyzing hospital records. In the review chart, one item asks if any psychiatric disorders are present in first-degree relatives? In 33 out of 39 cases, personal interviews were made with at least one relative; and (ii) in the case of any information about psychiatric disorders in relatives out of these two data sets, additional information was collected either by SKID II interview with the relatives in question or by analyzing the hospital records about inpatient treatments of these persons.

In cases of psychotic disorders, the diagnoses and time of onset were taken out of the hospital records; in cases of possible personality disorders, a SKID II interview was done in order to classify this disorder according to DSM-IV.

Information about the age of onset and course of the symptoms was taken from the hospital records. Additionally, patients and relatives were asked by interview...