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increased severity of brain abnormality. Despite the more severe course, current evidence supports the efficacy of both psychosocial and pharmacological interventions in the management of childhoodonset and, particularly, adolescent-onset schizophrenia. Children with childhood-onset schizophrenia have been shown to have more significant deficits in measures of intelligence quotient (IQ), memory, and tests of perceptuomotor skills compared with adolescent-onset schizophrenia. Increased impairment in childhood-onset schizophrenia of cognitive measures such as IQ, working

memory, and perceptuomotor skills such deficits may be premorbid markers of illness, rather than sequelae, of the disorder. Although cognitive impairments are greater in younger patients with schizophrenia, clinical presentation of schizophrenia remains remarkably similar across the ages, and the diagnosis of childhood-onset schizophrenia is continuous with that in adolescents and adults, with one exception: in childhood-onset schizophrenia a failure to achieve expected social and academic functioning may replace a deterioration in functioning. According to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), the diagnosis of schizophrenia includes an "active phase" of the illness, consisting of at least one of the following three symptoms: delusions, hallucinations, or disorganized speech, and at least one additional symptom present most of the time for a month. The additional symptom may be another one of the preceding three, or one of the following two symptoms: grossly disorganized or catatonic behavior, or negative symptoms (i.e., diminished emotional expression or avolition). In the active phase, symptoms are present for a significant amount of time during a single month and cause impairment. To meet full criteria for schizophrenia, continuous signs of disturbance must persist for at least 6 months. Social, academic, or occupational impairment must be present. In contrast to previous diagnostic criteria, the subtypes of schizophrenia (paranoid, disorganized, catatonic, undifferentiated, and residual) have been eliminated due to their lack of diagnostic validity and reliability. Instead, an eight-symptom "ClinicianRated Dimensions of Psychosis Symptom Severity" scale for determining severity of psychosis across many psychotic illnesses is included in Section III of the DSM-5. Symptom domains rated in this scale include the following: hallucinations, delusions, disorganized speech, abnormal psychomotor behavior, negative symptoms (restricted emotional expression or avolition), impaired cognition, depression, and mania. HISTORICAL PERSPECTIVE Before the 1960s, the term childhood psychosis was applied to a heterogeneous group of children, many of whom exhibited autism spectrum disorder symptoms without hallucinations and delusions. In the late 1960s and 1970s, reports of children with evidence of a profound psychotic disturbance very early in life included observations of intellectual disabilities, social deficits, and severe communication and language impairments, and no family history of schizophrenia. Children whose psychoses emerged after the age of 5 years, however, more often exhibited auditory hallucinations, delusions, inappropriate affect, thought disorder, normal intellectual function, and a positive family history of schizophrenia. In the 1980s, schizophrenia with childhood onset was formally separated from what was then termed autistic disorder, and currently termed autism spectrum disorder. The distinction of childhood schizophrenia from autism spectrum disorder reflected evidence accrued during the 1960s and 1970s showing a divergent clinical picture, family history, age of onset, and course between the two disorders. However, even after the separation of the disorders, controversy and confusion remained as to the distinctiveness in the

long-term courses of these disorders. First, research documented a small group of children with autism spectrum disorder who developed schizophrenia in later childhood or adolescence. Second, many children with childhood-onset schizophrenia exhibit neurodevelopmental abnormalities, some of which are also evident in children with autism spectrum disorder. Children with autism spectrum disorder and those with childhood-onset schizophrenia are typically impaired in multiple areas of adaptive functioning from relatively early in life. However, in autism spectrum disorder, the onset is almost always before 3 years of age, whereas the onset of childhood-onset schizophrenia occurs before the age of 13 years, but most often is not recognizable in children until after the age of 3 years. Childhood-onset schizophrenia is significantly less frequent than adolescent-onset or onset in young adulthood, and few reports document cases of schizophrenia onset before 5 years of age. According to the DSM-5, schizophrenia can be diagnosed in the presence of autism spectrum disorder, provided that the diagnosis of schizophrenia is specifically differentiated from autism spectrum disorder. EPIDEMIOLOGY The frequency of childhood-onset schizophrenia is reported to be less than one case in about 40,000 children, whereas among adolescents between the ages of 13 and 18 years, the frequency of schizophrenia is increased by a factor of at least 50. Schizophrenia with childhood onset resembles the more severe, chronic, and treatment-refractory adultonset schizophrenic subgroups, in that the same core phenomenological features are present; however, in childhood-onset schizophrenia, extremely high rates of comorbidities are present, including attention-deficit/hyperactivity disorder (ADHD), depressive disorders, anxiety disorders, speech and language disorders, and motor disturbances. In adolescents, the prevalence of schizophrenia is estimated to be 50 times that in younger children, with probable rates of 1 to 2 per 1,000. Boys seem to have a slight preponderance among children diagnosed with schizophrenia, with an estimated ratio of about 1.67 boys to 1 girl. Boys often become identified at a younger age than girls do. Schizophrenia rarely is diagnosed in children younger than 5 years of age. The prevalence of schizophrenia among the parents of children with schizophrenia is about 8 percent, which is about twice the prevalence in the parents of patients with adult-onset schizophrenia. ETIOLOGY Childhood-onset schizophrenia is a neurodevelopmental disorder in which complex interactions between genes and the environment are presumed to result in abnormal early brain development. The consequences of the aberrant brain development in schizophrenia may not be fully evident until adolescence or early adulthood; however, data support the hypothesis that white matter abnormalities and disturbances in myelination in childhood, lead to abnormal connectivity between brain regions. The aberrant connectivity in various regions of the brain is believed to be an important

contributing factor in the psychotic symptoms and cognitive deficits in childhood-onset schizophrenia. Genetic Factors Estimates of heritability for childhood-onset schizophrenia have been as high as 80 percent. The precise mechanisms of transmission of schizophrenia are still not well understood. Schizophrenia is known to be up to eight times more prevalent among firstdegree relatives of those with schizophrenia than in the general population. Adoption studies of patients with adult-onset schizophrenia have shown that schizophrenia occurs in the biological relatives, not the adoptive relatives. Additional genetic evidence is supported by higher concordance rates for schizophrenia in monozygotic twins than in dizygotic twins. Higher rates of schizophrenia have been established among relatives of those with childhood-onset schizophrenia than in the relatives of those with adult-onset schizophrenia. Endophenotype Markers for Childhood-Onset Schizophrenia. Currently, no reliable method can identify persons at the highest risk for schizophrenia in a given family. Neurodevelopmental abnormalities and higher-than-expected rates

of neurological soft signs and impairments in sustaining attention and in strategies for information processing appear among children at high risk. Increased rates of disturbed communication styles are found in family members of individuals with schizophrenia. Reports have documented higher than expected neuropsychological deficits in attention, working memory, and premorbid IQ among children who later develop schizophrenia and its spectrum disorders. Magnetic Resonance Imaging (MRI) Studies A National Institute of Mental Health (NIMH) prospective study of more than 100 patients with childhood-onset schizophrenia and their typically developing siblings has demonstrated progressive loss of gray matter, delayed and disrupted white matter growth, and a decline in cerebellar volume in those with childhood-onset schizophrenia. Although siblings of children with childhood-onset schizophrenia also showed some of these brain disruptions, the gray matter abnormalities were normalized over time in the siblings, indicating a protective mechanism in siblings that was not present in those children with childhood-onset schizophrenia. Furthermore, the hippocampal volume loss across the age span appears to be static among children with childhood-onset schizophrenia. An MRI NIMH study of more than 100 children with childhood-onset schizophrenia and their typically developing siblings, studied for about two decades, documented that in childhood-onset schizophrenia, progressive brain gray matter loss occurs continuously over time. This gray matter shrinkage occurs with ventricular increases, with a pattern of loss originating in the parietal region and proceeding frontally to dorsolateral prefrontal and temporal cortices, including superior temporal gyri. Studies of childhood-onset schizophrenia at the NIMH provided evidence that early

loss of parietal gray matter followed by frontal and parietal gray matter loss is more pronounced in childhood-onset schizophrenia than in schizophrenia with later onset. Other research utilized diffusion tensor images from children with childhood-onset schizophrenia versus controls and found increased diffusivities in the posterior corona radiata in children with childhood-onset schizophrenia, which implicated abnormal connectivity with the parietal lobes. These results contrasted with findings among subjects with later onset of schizophrenia in whom there were more abnormalities in the frontal lobes. DIAGNOSIS AND CLINICAL FEATURES All of the symptoms included in adult-onset schizophrenia may be manifest in children and adolescents with the disorder. However, youth with schizophrenia are more likely to have a premorbid history of social rejection, poor peer relationships, clingy withdrawn behavior, and academic trouble than those with adult-onset schizophrenia. Some children with schizophrenia evaluated in middle childhood have early histories of delayed motor milestones and language acquisition similar to some symptoms of autism spectrum disorder. The onset of schizophrenia in childhood is frequently insidious, starting with inappropriate affect or unusual behavior; it may take months or years for a child to meet all of the diagnostic criteria for schizophrenia. Auditory hallucinations commonly occur in children with schizophrenia. The voices may reflect an ongoing critical commentary, or command hallucinations may instruct children to harm or kill themselves or others. Hallucinatory voices may sound human or animal, or “bizarre,” for example, identified as “a computer in my head,” martians, or the voice of someone familiar, such as a relative. The childhood-onset schizophrenia project at the NIMH found high rates across all hallucination modalities. However, there were unexpectedly high rates of tactile, olfactory, and visual hallucinations among this study group of patients with childhood-onset schizophrenia. Visual hallucinations were associated with lower IQ and earlier age at onset of disease. Visual hallucinations are often frightening; affected children may “see” images of the devil, skeletons, scary faces, or space creatures. Transient phobic visual hallucinations occur in severely anxious or traumatized children who do not develop major psychotic disorders. Visual,

tactile, and olfactory hallucinations may be a marker of more severe psychosis. Delusions occur in up to half of children and adolescents with schizophrenia, in various forms, including persecutory, grandiose, and religious. Delusions increase in frequency with increased age. Blunted or inappropriate affect appears almost universally in children with schizophrenia. Children with schizophrenia may giggle inappropriately or cry without being able to explain why. Formal thought disorders, including loosening of associations and thought blocking, are common features among youth with schizophrenia. Illogical thinking and poverty of thought are also often present. Unlike adults with schizophrenia, children with schizophrenia do not have poverty of speech content, but they speak less than other children of the same

intelligence and are ambiguous in the way they refer to persons, objects, and events. The communication deficits observable in children with schizophrenia include unpredictably changing the topic of conversation without introducing the new topic to the listener (loose associations). Children with schizophrenia also exhibit illogical thinking and speaking and tend to underuse self-initiated repair strategies to aid in their communication. When an utterance is unclear or vague, normal children attempt to clarify their communication with repetitions, revision, and more detail. Children with schizophrenia, on the other hand, fail to aid communication with revision, fillers, or starting over. These deficits may be conceptualized as negative symptoms in childhood schizophrenia. Although core phenomena for schizophrenia seem to be universal across the age span, a child's developmental level significantly influences the presentation of the symptoms. Delusions of young children are less complex, therefore, than those of older children, for example, age-appropriate content, such as animal imagery and monsters, is likely to be a source of delusional fear in young children. According to the DSM-5, a child with schizophrenia may experience deterioration of function, along with the emergence of psychotic symptoms, or the child may never achieve the expected level of functioning. A 12-year-old 6th grade boy named Ian, with a longstanding history of social isolation, academic problems, and temper outbursts began to develop concerns that his parents might be poisoning his food. Over the next year, his symptoms progressed with increased suspiciousness and fearfulness, preoccupation with food, and beliefs that Satan was trying to communicate with him. Ian also appeared to be responding to auditory hallucinations that he believed were coming from the radio and television, which he found frightening and commanded him to harm his parents. Ian had also been informing his mother that their food had a strange smell and that's why he thought it was poisoned, and at night, he would see frightening figures in his room. During this time, his parents also observed bizarre behaviors, including talking and yelling to himself, perseverating about devils and demons, and finally, assaulting family members because he thought they were evil. On one occasion, Ian was found to be scratching himself with a kitchen knife in an effort to "please God." No predominant mood symptoms emerged, and there was no history of substance abuse found. Developmentally, Ian was the product of a full-term pregnancy complicated by a difficult labor and forceps delivery. His early motor and speech milestones were each delayed by about 6 months; however, his pediatrician reassured his parents that this was within the limits of normal development. As a younger child, Ian tended to be quiet and socially awkward. His intellectual function was tested and was found to be in the average range; however, academic achievement testing was consistently below grade level. Ian remained lonely and isolated, and he had great difficulty making friends. Ian has had no medical problems and his immunizations were up to date.

Ian’s family psychiatric history was significant for depression in a maternal aunt and a completed suicide in a maternal great-grandparent. Ian was sent by ambulance to the hospital for the first time from school when he tried to jump off a balcony on the second story of his school, in response to auditory hallucinations commanding him to kill himself. During his hospitalization his parents reluctantly consented to a trial of risperidone for him, and he was titrated up to 3 mg per day. His auditory hallucinations were moderately improved after 2 weeks of treatment; however, he continued to be suspicious and mistrustful of his physicians and family. Ian’s family was very confused as to what had caused Ian’s serious symptoms, and the hospital treatment team met with his parents multiple times during his hospitalization to reassure them that they had not caused his illness and that; their continued support might improve his chances of improvement. After discharge from the hospital, 30 days later, Ian was placed in a special education program, in a nonpublic school, and he was assigned a psychotherapist who met regularly with him individually and with his family. At the time of discharge from the hospital, Ian’s symptoms had moderately improved, although he still had auditory hallucinations intermittently. Over the next 5 years subsequent to the onset of his illness, Ian had many exacerbations of his psychosis and he was hospitalized nine times, including placement in a long-term residential program. Ian had received trials of olanzapine, quetiapine, and aripiprazole, each of which seemed to lead to improvement for a period of time, after which he was no longer responsive to the medications. Ian continued to receive individual cognitive behavioral therapy and family therapy, and his family was very supportive. Even with these interventions, Ian’s mental status continued to display tangential and disorganized thinking, paranoid delusions, loose associations, perseverative speech patterns, and a flat, at times inappropriate, affect. He had periods of time in which he resorted to pacing and muttering to himself, with no social interaction with others unless initiated by adults. Finally, Ian achieved significant improvement after being placed on clozapine (Clozaril) therapy, although he remained mildly symptomatic. (Adapted from a case by Jon M. McClellan, M.D.) PATHOLOGY AND LABORATORY EXAMINATIONS No specific laboratory tests are diagnostically specific for childhood-onset schizophrenia. Electroencephalography (EEG) studies have not been helpful in distinguishing children with schizophrenia from other children. Although data exist to suggest that hypoprolinemia is associated with the risk of schizoaffective disorder due to an alteration on chromosome 22q11, no association of hyperprolinemia with childhoodonset schizophrenia has been identified. DIFFERENTIAL DIAGNOSIS One of the significant challenges in making a diagnosis of childhood-onset schizophrenia

is that very young children who report hallucinations, apparent thought disorders, language delays, and poor ability to differentiate reality from fantasy may be manifesting phenomena better accounted for by other disorders such as posttraumatic stress disorder, or sometimes developmental immaturity, none of which evolve into a major psychotic illness. Nevertheless, the differential diagnosis of childhood-onset schizophrenia includes autism spectrum disorder, bipolar disorders, depressive psychotic disorders, multicomplex developmental syndromes, drug-induced psychosis, and psychosis caused by organic disease states. Children with childhood-onset schizophrenia have been shown to have frequent comorbidities, including ADHD, oppositional defiant disorder, and major depression. Children with schizotypal personality disorder have some traits in common with children who meet diagnostic criteria for schizophrenia. Blunted affect, social isolation, eccentric thoughts, ideas of reference, and bizarre behavior can be seen in both disorders; however, in schizophrenia, overt psychotic symptoms, such as hallucinations, delusions, and incoherence, must be present at some point. Hallucinations alone, however, are not evidence

of schizophrenia; patients must show either a deterioration of function or an inability to meet an expected developmental level to warrant the diagnosis of schizophrenia. Auditory and visual hallucinations can appear as self-limited events in nonpsychotic young children who are experiencing extreme stress or anxiety related to unstable home lives, abuse, or neglect or in children experiencing a major loss. Psychotic phenomena are common among children with major depressive disorder, in which both hallucinations and, less commonly, delusions may occur. The congruence of mood with psychotic features is most pronounced in depressed children, although children with schizophrenia may also seem sad. The hallucinations and delusions of schizophrenia are more likely to have a bizarre quality than those of children with depressive disorders. In children and adolescents with bipolar I disorder, it often is difficult to distinguish a first episode of mania with psychotic features from schizophrenia if the child has no history of previous depressions. Grandiose delusions and hallucinations are typical of manic episodes, but clinicians often must follow the natural history of the disorder to confirm the presence of a mood disorder. Autism spectrum disorders share some features with schizophrenia, most notably, difficulty with social relationships, an early history of delayed language acquisition, and ongoing communication deficits. However, hallucinations, delusions, and formal thought disorder are core features of schizophrenia and are not expected features of autism spectrum disorder. Autism spectrum disorder is usually diagnosed by 3 years of age, whereas schizophrenia with childhood onset can rarely be diagnosed before 5 years of age. Among adolescents, alcohol and other substance abuse sometimes can result in a deterioration of function, psychotic symptoms, and paranoid delusions. Amphetamines, lysergic acid diethylamide (LSD), and phencyclidine (PCP) may lead to a psychotic state. A sudden, flagrant onset of paranoid psychosis may suggest substance-induced psychotic disorder. Medical conditions that can induce psychotic features include thyroid disease, systemic lupus erythematosus, and temporal lobe disease.

COURSE AND PROGNOSIS Important predictors of the course and outcome of childhood and early-onset schizophrenia include the child’s premorbid level of functioning, the age of onset, IQ, response to psychosocial and pharmacological interventions, degree of remission after the first psychotic episode, and degree of family support. Early age at onset, and children with comorbid developmental delays, learning disorders, lower IQ, and premorbid behavioral disorders, such as ADHD and conduct disorder, are less treatment responsive and likely to have the most guarded prognoses. Predictors of a poorer course of childhood-onset schizophrenia include family history of schizophrenia, young age and insidious onset, developmental delays and lower level of premorbid function, and chronic or length of first psychotic episode. Psychosocial and family stressors are known to influence the relapse rate in adults with schizophrenia, and high expression of negative emotion (EE) likely affects children with childhood-onset schizophrenia as well. An important factor in outcome is the accuracy and stability of the diagnosis of schizophrenia. One study reported that one third of children who received an initial diagnosis of schizophrenia were later diagnosed with bipolar disorder in adolescence. Children and adolescents with bipolar I disorder may have a better long-term prognosis than those with schizophrenia. The NIMH-funded Treatment of Early-Onset Schizophrenia reported outcome of neurocognitive functioning in 8- to 19-year-old youth with schizophrenia or schizoaffective disorders, who participated in a randomized double-blind clinical trial comparing molindone, olanzapine, and risperidone. The three medication groups yielded no group differences in neurocognitive functioning over a year; however, when data from the three groups were combined, a significant modest improvement was observed in several domains of neurocognitive functioning. The authors concluded that antipsychotic intervention in youth with

early-onset schizophrenia spectrum disorders led to modest improvement in neurocognitive function. TREATMENT The treatment of childhood-onset schizophrenia requires a multimodal approach, including psychoeducation for families, pharmacological interventions, psychotherapeutic interventions, social skills interventions, and appropriate educational placement. A recent randomized controlled trial investigated the effectiveness of several psychosocial interventions on youth in an early prodromal stage, characterized by changes in cognitive and social behavior. The interventions, termed integrated psychological interventions, specifically included cognitive-behavioral therapy, group skills training, cognitive remediation therapy, multifamily psychoeducation, and supportive counseling on the prevention of psychosis. Of interest, the integrated psychological intervention was shown to be more effective than standard treatments in delaying the onset of psychosis over a 2-year follow-up period. These results sparked interest in the potential utility of psychosocial interventions to mediate psychosis, and

to alter relapse rate and severity of illness over time. Children with childhood-onset schizophrenia may have less robust responses to antipsychotic medications than adolescents and adults. Family education and ongoing therapeutic family interventions are critical to maintain the maximum level of support for the patient. Monitoring the most appropriate educational setting for a child with childhood-onset schizophrenia is essential, especially in view of the frequent social skill deficits, attention deficits, and academic difficulties that often accompany childhood-onset schizophrenia. Pharmacotherapy Second-generation antipsychotics, serotonin-dopamine antagonists, are current mainstay pharmacological treatments for children and adolescents with schizophrenia, having largely replaced the conventional antipsychotics, that is, dopamine receptor antagonists, due to their more favorable side-effect profiles. Current data include six randomized clinical trials in youth investigating the efficacy of second-generation antipsychotics for early-onset schizophrenia, with limited support for one agent over the others. Although clozapine, a serotonin receptor antagonist with some dopamine (D2) antagonism, which is hypothesized to be more effective in reducing positive and negative symptoms, has been shown to be highly effective in adults with treatmentrefractory schizophrenia, it remains a choice of last resort in youth, based on its serious side effects. To date, however, evidence from multisite randomized clinical trials supports some efficacy of risperidone, olanzapine, aripiprazole, and clozapine in the treatment of childhood- and adolescent-onset schizophrenia. Two randomized clinical trials using risperidone in adolescents with schizophrenia found risperidone at doses up to 3 mg per day to be superior to placebo. A multisite randomized 6-week controlled trial of olanzapine in adolescents with schizophrenia found that it was more efficacious than placebo. A randomized controlled trial of aripiprazole at two fixed doses found that it was superior to placebo in the treatment of positive symptoms of adolescent schizophrenia; however, more than 40 percent of subjects in the active medication group did not achieve remission. Finally, clozapine has been demonstrated to be more effective than haloperidol in improving both positive and negative symptoms in treatment-resistant schizophrenia in youth. More recently, a study compared clozapine to high doses of olanzapine and found that response rates were about twice as great for clozapine as olanzapine (66% vs. 33%) when response was defined by a 30% or greater reduction in symptoms on the Brief Psychiatric Rating Scale and improvement on the Clinical Global Impression Scale. The Treatment of Early Onset Schizophrenia Spectrum Disorders Study compared the efficacy of risperidone and olanzapine with those of molindone, a mid-potency conventional antipsychotic. In this study, lacking a placebo group, each of these agents provided a similar therapeutic effect; however, fewer than half of the patients

responded optimally. Despite the limited randomized controlled studies of second-generation antipsychotics for the treatment of schizophrenia in youth, the Food and Drug Administration (FDA) is progressively approving the use of these agents for pediatric schizophrenia and bipolar illness. In 2007, the FDA approved the

use of risperidone and aripiprazole for the treatment of schizophrenia in 13- to 17-yearolds. The use of olanzapine and quetiapine were approved by the FDA in 2009 in the treatment of schizophrenia in 13 to 17 year olds. A double-blind, randomized 8-week controlled trial compared the efficacy and safety of olanzapine to clozapine in childhood-onset schizophrenia. Children with childhoodonset schizophrenia who were resistant to at least two previous treatments with antipsychotics were randomized to treatment for 8 weeks with either olanzapine or clozapine followed by a 2-year open-label follow-up. Using the Clinical Global Impression of Severity of Symptoms Scale and Schedule for the Assessment of Negative/Positive Symptoms, clozapine was found to be associated with a significant reduction in all outcome measures, whereas olanzapine showed improvement on some measures but not on all. The only statistically significant measure in which clozapine was superior to olanzapine was in alleviating negative symptoms, compared with baseline. Clozapine was associated with more adverse events, such as lipid abnormalities and a seizure in one patient. Several studies have provided evidence that risperidone, a benzisoxazole derivative, is as effective as the older high-potency conventional antipsychotics, such as haloperidol (Haldol), and causes less frequent severe side effects, in the treatment of schizophrenia in older adolescents and adults. Published case reports and limited larger controlled studies have supported the efficacy of risperidone in the treatment of psyhosis in children and adolescents. Risperidone has been reported to cause weight gain and dystonic reactions and other extrapyramidal adverse effects in children and adolescents. Olanzapine is generally well tolerated with respect to extrapyramidal adverse effects compared with conventional antipsychotics and risperidone, but it is associated with moderate sedation and significant weight gain. Psychosocial Interventions Psychosocial interventions aimed at family education and patient and family support are recognized as critical components of the treatment plan for childhood-onset schizophrenia. Although there are not yet randomized controlled trials of psychosocial interventions in children and adolescents with schizophrenia, family therapy, psychoeducation, and social skills training have been shown to lead to improved clinical symptoms in young adults with a first episode of schizophrenia, and reviews of the adult literature support the benefit of cognitive behavioral therapy, and cognitive remediation as adjunctive treatments to pharmacologic agents in adults. Psychotherapists who work with children with schizophrenia must take into account a child’s developmental level in order to support the child’s reality testing and be sensitive to the child’s sense of self. Long-term supportive family interventions and cognitive behavioral and remediation interventions combined with pharmacotherapy are likely to be the most effective approach to early-onset schizophrenia. REFERENCES

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