Schizophrenia and Substance Abuse

by RICHARD J. FRANCES, MD

The importance of integrating and coordinating services for mental health and substance abuse patients is becoming increasingly recognized.1,3 Nowhere is such integration more important than in the treatment of substance-abusing patients with schizophrenia. Treating patients with this dual diagnosis is a challenge. The clinician must be able to make the correct diagnosis, be familiar with substance-specific interactions, and understand the issues related to treatment of patients with comorbid schizophrenia and substance abuse.

Magnitude of the Problem

Comorbidity of schizophrenia and substance abuse is common, and each can be a risk factor for the other.4,4 According to epidemiologic catchment area studies,6 47% of patients with schizophrenia have a substance abuse disorder during their lifetime (not including nicotine). Schizophrenic patients also have a 10-fold increase over the general population in the odds ratio for alcoholism and a 7.5-fold increase in the odds ratio for drug addiction.6,10 Between 50% and 60% of male schizophrenic patients have some type of drug or alcohol addiction.11 Approximately 30% of hospitalized schizophrenic patients have disorders related to substance abuse, and 5% of inpatient alcoholic patients have schizophrenia.11

The combination of schizophrenia and substance abuse contributes to an increased risk of hospitalization, frequent and longer hospital stays, poorer compliance with drug therapy, against medical advice sign-outs, relapse, and added costs.12-16 Patients with this dual diagnosis are more likely to be homeless and have a greater need for Social Security disability payments. Patients also are at risk for interactions between antipsychotic medications and the abused substance. They also are at higher risk for suicide and bizarre violent crimes.17,18 Deinstitutionalized patients are more likely to be exposed to opportunities to use drugs than those who are hospitalized. Although providing proper food, housing, and medical care for such patients is difficult, it is necessary to break the cycle of homelessness and addiction.19

Substance-abusing patients with schizophrenia pose the greatest challenge to providers of public care. These patients often cannot hold a job, lack family support, and have legal problems. An additional challenge is that clinicians must treat both the mental disorder and the medical complications of substance abuse. Patients with schizophrenia who abuse drugs or alcohol are at higher risk for illnesses such as acquired immunodeficiency syndrome, tuberculosis, septicaemia, and cirrhosis of the liver and may find it difficult to adhere to treatment regimens for these diseases. Municipal hospitals are increasingly treating patients who experience a combination of intravenous drug use, tuberculosis, and schizophrenia—a highly stigmatized population that many therapists are reluctant to treat.

Persuading substance-abusing schizophrenic patients to comply with treatment is difficult, particularly because substance abusers often have problems with authority figures. This problem is compounded when paranoia and psychosis are part of the clinical picture.20 Ironically, patients with addictions may resist taking medications prescribed by a physician,21 although they continue to take the abused substance to relieve their symptoms. Patients with schizophrenia also are harder to involve in 12-step programs such as Alcoholics Anonymous (AA). These programs often are not adequately supportive of patients with psychoses and emphasize confrontation, which may be problematic for patients and family members.

Patients with addictive disorders and schizophrenia must be cautioned about driving vehicles while taking medication. The comorbidity of these disorders also can lead to greater risk-taking behavior, which may be linked to deficits in judgment and reality testing.

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Comorbidity of schizophrenia and substance abuse changes the typical course of both disorders.\textsuperscript{3,22} Each disorder can complicate and worsen the other, making compliance difficult and leading to poor outcomes. Although treatment of an addiction should positively affect the course of a psychotic disorder, on average, the combination of disorders contributes to a poorer prognosis.\textsuperscript{23} Intoxication and withdrawal symptoms can contribute to increased mood and anxiety problems.\textsuperscript{20,24-26} The abuse of substances also contributes to a deterioration of morals and values that leads to an increase in antisocial, behavioral, and legal problems. Marital and job stability often are positive prognostic factors for patients with early substance abuse.\textsuperscript{29} In addition, job training in sheltered workshop programs and employment opportunities may reduce the risk of relapse and criminal activity.

Patients who are impaired by schizophrenia and addictions often require Social Security disability assistance and welfare. Because patients may spend this money on drugs or alcohol, public support for their programs is waning. Thus, it may be necessary to mandate treatment before beginning disability payments. Direct payment to the treating agency also can help ensure that money is spent only on treatment. In some cases, a guardian may need to be appointed to handle the patient’s finances. In all cases, considerable expertise is needed to differentiate manipulative requests for disability from genuine requests and to evaluate whether disability funds are being used appropriately.

**ROLE OF GENETICS**

Evidence suggests a biologic underpinning for schizophrenia and substance-related disorders.\textsuperscript{30} Both disorders have genetic and familial patterns of occurrence, and assortative mating between persons with schizophrenia and those with substance disorders may occur. A search for genetic markers for both disorders has sometimes led up blind alleys. Both substance abuse and schizophrenia are probably polygenic.

Efforts at preventing substance abuse should be focused on high-density families (i.e., families with one or more first-degree relatives with schizophrenia) and families in which relatives have both substance abuse and psychotic disorders. Children from such families might benefit from preventive measures, such as social-skills and drug-refusal training, because they are at greatest risk for the severe psychosocial problems that characterize both disorders.

**MAKING THE DIAGNOSIS**

Diagnosing an addictive disorder in a schizophrenic patient is difficult because of overlapping symptoms and patient denial.\textsuperscript{31} Tools such as the CAGE questionnaire, the Michigan Alcohol Screening Test, and the Addiction Severity Index may be useful.\textsuperscript{32,36} In addition, laboratory tests may reveal a positive toxicology. Serum gamma glutamyltransferase (GGT) is a commonly ordered laboratory test useful for detecting heavy drinking; GGT is elevated in 70\% of alcoholic patients. Increased levels of aspartate aminotransferase and erythrocyte mean corpuscular volume also indicate alcoholism.\textsuperscript{35,37} Medical data from physical examinations may reveal cirrhosis of the liver, ulcers, infection, and myriad medical complications related to alcoholism and drug abuse. Demographically, schizophrenic patients who abuse substances are more likely to be male and less likely to be married or employed.

Because patients often deny substance abuse, the clinician must obtain information from collateral sources, including family members, employers, probation officers, and physicians who have previously treated the patient. To differentiate schizophrenic symptoms from signs of substance abuse, the physician should consider the age of onset of schizophrenia, which illness came first, whether psychotic symptoms persist during drug-free intervals, and whether the patient’s addiction is masked by the positive and negative symptoms of schizophrenia. Some patients willingly admit their addiction problem and do not want to be diagnosed as schizophrenic, whereas others prefer to be considered mentally ill rather than addicted. What patients consider stigmatizing can affect whether they self-diagnose and whether they will cooperate with a treatment plan that involves a program for mentally ill, chemically abusing patients. Some patients prefer a pure substance abuse program and others balk at the idea of including substance abuse treatment.

Differential diagnosis of psychotic behavior in addicted patients depends on several factors: (1) whether symptoms subside or intensify after alcohol or drug abuse stops; (2) whether symptoms respond to treatment of withdrawal when a psychosis is present; (3) whether the patient has a positive family history of psychosis; and (4) whether psychosis occurred before or after the substance abuse. Patients who have a psychosis and an addiction are likely to suffer from severe fears, paranoia, hallucinations, and depression. In the past, the diagnosis of independent schizophrenia, mood disorder, and anxiety disorder probably was overused. The fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* has helped focus attention on substance-induced diagnoses, such as psychotic disorders, delirium, intoxication, affective disorder, mood disorders, and anxiety disorders.\textsuperscript{35}

**EFFECT OF SUBSTANCE ABUSE ON SCHIZOPHRENIA**

The most common substances abused by patients with schizophrenia are alcohol, nicotine, marijuana, and cocaine. Each of these substances affects the patient in different ways.

**Alcohol**

Alcohol abuse may increase cognitive and organic impairment.\textsuperscript{19,36} Patients may suffer periods of memory loss during blackouts, and in severe alcoholic deterioration, chronic memory loss can occur. The withdrawal hallucinations of
delirium tremens may be difficult to differentiate from the hallucinations of schizophrenia. Liver dysfunction resulting from alcoholism can affect the metabolism of medications. Early on, alcohol may increase drug metabolism; with chronic liver failure, however, medications may accumulate. Alcoholism can contribute to anemia, which needs to be differentiated from the aplastic anemia related to antipsychotic medication use. Another concern is that the combination of alcohol and antipsychotic drugs lowers the seizure threshold.

**Nicotine**

Eighty percent of schizophrenic patients smoke cigarettes. The ingestion of nicotine from cigarettes can contribute to more rapid metabolism of antipsychotic drugs, can decrease the blood levels of antipsychotic drugs, and can increase the risk of movement disorders related to antipsychotic drug use. Smoking also increases medical problems and promotes early death in schizophrenic patients. Nicotine addiction is an expensive habit and consumes a significant portion of the limited resources available to unemployed patients. Another problem is that nicotine and alcohol are gateway substances to abuse of other substances in this patient population.

**Marijuana and Hallucinogens**

In longitudinal studies, marijuana use has been identified as a possible cofactor for increased paranoia and possibly schizophrenia. The use of marijuana also decreases the efficacy of and increases the side effects associated with antipsychotic drugs. Schizophrenic patients who use marijuana also are more likely to engage in illegal activities. Along with tobacco and alcohol use, marijuana use contributes to the financial problems of schizophrenic patients.

The abuse of lysergic (LSD), mescaline, and other hallucinogens can lead to psychotic and catatonic states that are difficult to distinguish from schizophrenia.

**Cocaine**

Frequent use of cocaine and amphetamines causes symptoms that closely mimic those of schizophrenia; abuse of these substances also worsens the mental illness. The use of stimulants increases violent behavior among schizophrenic patients, and withdrawal of these substances increases depression and suicidal tendencies. Paranoia, hallucinations, and other psychotic symptoms also are increased in patients who use cocaine. Cognitive deficits and permanent brain damage can result from heavy cocaine use. These effects may manifest as attention, concentration, and judgment problems and may correlate with the long-term brain changes seen on positron emission tomographic scans. Cocaine users are more likely to suffer from the side effects of antipsychotic medication. They also are more likely to use other drugs and alcohol in an attempt to alleviate the disturbing side effects of cocaine. All of these behaviors contribute to increased legal and financial problems.

**TREATMENT**

Addictive disorders and schizophrenia must be treated in synchrony, which requires a skilled staff and integration of available treatment resources. Patients with a dual diagnosis are more likely to require inpatient treatment and longer hospital stays than those with either disorder alone.

Because cures for schizophrenia and substance abuse are unlikely, worthwhile treatment goals are extended periods of sobriety, better medication compliance, and longer periods of remission. To achieve these goals, general mental health practitioners skilled in the diagnosis and treatment of addictive disorders and addiction counselors with psychiatric skills are needed. The complexity of treating intoxication, withdrawal symptoms, and the chronic effects of addiction in relation to chronic mental disorders emphasizes the need for addiction psychiatrists to supervise teams, head programs, and treat difficult patients.

Patients with dual diagnoses can benefit from treatment programs that provide continuity of care. Coordination and integration of self-help programs, such as the Mental Health Association of America (MIA), Alanon, AA, and other 12-step programs, is also necessary. Therapists who treat schizophrenic, substance-abusing patients must provide more support, be less confrontational, and help reduce feelings of guilt and blame throughout the family.

**Psychosocial Intervention**

Psychoeducation and cognitive behavioral approaches are helpful in treating schizophrenic, chemically dependent patients. Educational programs should emphasize the importance of abstaining from substance abuse and taking prescribed medications. Clearly, addiction programs have been more successful at helping patients withdraw from illegal substances and general psychiatric services have been better at persuading patients to take antipsychotic medications. A dual diagnosis program must combine both efforts.

It is essential that the clinician establish a trusting relationship with the patient. This relationship is best begun by helping the patient solve practical problems related to housing, work, and welfare. Family members should be involved in the patient’s treatment, but may also need support themselves.

When applied to chronic mentally ill, substance-abusing patients, the case management model has been useful in helping mobilize treatment and community resources; however, this approach also increases treatment costs. Helping patients participate in AA, Alanon, and NAMI support groups and finding groups appropriate for these dual-diagnosis patients may be difficult. Sometimes patients may need to start with individual therapy before they are ready to participate in groups.

Schizophrenic patients who abuse substances need long-term rehabilitation and often
participate in group therapy with other patients with chronic mental illnesses. Increasingly, the focus has shifted from inpatient treatment to partial hospital programs that are highly structured and involve group participation, recreational activities, and occupational therapy. Patients may also benefit from early outpatient intervention, use of the least restrictive alternative, and use of partial hospitalization when possible. Therapists must develop flexible programs that combine addiction and psychiatric treatment. Wherever possible, case management should be provided for patients with chronic disorders.

**Drug Therapy**

Substance-abusing patients with schizophrenia require sophisticated psychopharmacologic treatment. Clinicians can easily err in the direction of too little or too much drug therapy. Patients are likely to go to the extreme of either embracing psychopharmacology as the only possible solution, or rejecting medication completely because of bad experiences with substance abuse.

The combination of comorbid conditions can affect the use of medication. Disulfiram (Antabuse), which is now used less frequently in alcoholic patients, must be used with caution for patients with impulsive and psychotic disorders because it can increase the potential for psychotic behavior. Naltrexone, a promising drug that lowers the desire for alcohol and is used to treat opiod addiction, has not been widely used for patients with dual diagnoses. Further study is needed of this patient population.

To date, no systematic study of the relationship between antipsychotic drug therapy and addictive behavior has been conducted. Drug interactions can be an issue, and a lowered seizure threshold clearly is a problem. Antipsychotic agents such as haloperidol and risperidone can attenuate the cocaine “high.” Clozapine and risperidone, which are newer antipsychotic agents, may increase the number of dual-diagnosis patients who respond to antipsychotic drug therapy. Compliance is an issue for both drugs, however, and may be a particular problem for patients taking clozapine because of the need for weekly blood monitoring to detect agranulocytosis. Risperidone has the advantages of fewer side effects and better patient acceptance.

Convincing substance abusers to take prescribed medication can be difficult and even more daunting when they receive support from an AA sponsor, who may discourage them from taking any medications. The physician may need to speak with the sponsor and the patient to convince them that AA supports the use of medication when needed. The use of depot medications can help ensure that patients comply with the treatment regimen.

Prescribing appropriate drug therapy can be difficult. Patients with a dual diagnosis are more likely to abuse a variety of drugs, from the rare abuse of antiparkinsonian drugs to the more common abuse of sleep medications, including newer agents such as zolpidem (Ambien) and benzodiazepines. Given the increased risk of side effects and drug interactions, low-dose, high-potency antipsychotic agents should be used when possible. The clinician also should avoid the use of antiparkinsonian drugs, benzodiazepines, and disulfiram. Newer antipsychotic drugs, such as risperidone, may decrease alcohol and drug abuse; however, this effect needs to be studied further.

**LEGAL ISSUES**

The trend continues toward deinstitutionalization of mentally ill, chemically dependent patients from hospitals, with subsequent reinstitutionalization in prison, often for a drug-related crime. While in jail, patients rarely receive treatment for their substance abuse or their psychosis. Whether such patients are competent to stand trial is a particular concern. Lawyers often plead diminished capacity as a defense, although expert testimony may be required to establish whether this is the case. It can be difficult to determine the extent to which intoxication, withdrawal symptoms, and interaction with a psychotropic process contribute to a patient’s inability to know right from wrong. In many states, sentences are reduced for patients addicted to alcohol or drugs if diminished capacity can be demonstrated.

When mentally ill prisoners are found incompetent to stand trial, they may spend long periods in jail or psychiatric facilities because they are perceived to be dangerous. In many cases, when and whether they are released may relate more to the quality of their legal counsel and their financial resources than to justice. Violent schizophrenic patients are much more likely to be addicted to drugs or alcohol; preventing relapse of both disorders is necessary for decreasing the violent behavior.

Expanding the role of outpatient facilities for psychotic, substance-abusing patients is warranted as a means of reducing the prison population. Sentencing mentally ill persons to residential treatment programs rather than to jail may be beneficial. In addition, using leverage such as outpatient commitment to aid in compliance may help reduce recidivism.

**CONCLUSION**

Schizophrenia and substance abuse present special challenges in diagnosis, substance-specific interactions, psychosocial intervention, and psychopharmacotherapy. Errors can easily be made by overemphasizing the treatment of either disorder rather than providing a synchronous approach that leads to abstinence from substance abuse and remission of psychotic symptoms.

**REFERENCES**

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