Applying a Stepped-Care Reduction Approach to Smokers With Schizophrenia

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The use of tobacco among patients with schizophrenia is much higher than in the general population, although prevalence figures vary widely. De Leon and colleagues (1995) estimated that at least 70% of individuals with schizophrenia smoke cigarettes. The relevance of such a high proportion of smokers among individuals suffering from schizophrenia is rooted in their presumed heightened risk of contracting physical illnesses. Cigarette smoking ameliorates aversive symptoms caused by schizophrenia, medication side effects and/or neurobiological substrates that underlie both schizophrenia and nicotine dependence (McChargue et al., 2002a). Thus, self-medication presumably explains why patients with schizophrenia experience a disproportionately higher reward value from smoking cigarettes than do control subjects who smoke an equivalent number of cigarettes per day (Spring et al., 2003).

Debate continues as to the most appropriate cessation treatment for smokers with schizophrenia (McChargue et al., 2002b). Current cessation trials have examined behavioral modification, pharmacotherapy and/or nicotine replacement therapy (NRT) in combination or alone with abstinence as the goal (McChargue et al., 2002a). At best, 300 mg/day bupropion sustained-release (Zyban) with cognitive-behavioral skills training produced short-term abstinence rates of approximately 50% by the end of the 10-week trial, although about one half of the patients had resumed cigarette smoking by the six-month follow-up assessment (George et al., 2002).

It remains unclear whether smokers with schizophrenia can maintain long-term abstinence beyond one year. More innovative treatments are needed to assist smokers with schizophrenia to quit smoking permanently by minimizing the short-term burden of abstinence and establishing adaptive coping skills, despite cognitive, social and psychiatric obstacles that impede cessation.

We advocate a stepped-care harm reduction approach to treatment that has been used by the outpatient smoking cessation clinic of the U.S. Department of Veterans' Affairs Boston Healthcare System in treating more than 400 smokers with comorbid psychiatric disorders. Although these treatment recommendations have yet to be compared with alternative treatments, our views as described below have been informed by the extensive clinical evaluative process conducted by the VA Boston Healthcare System, as well as by prior research.

Motivational State

The initial step in treating smokers with schizophrenia is to assess the patient's motivational state. Motivational assessments should initially focus on the reward value of cigarettes and not patients' self-proclaimed motivation to quit. If cigarettes represent one of the only rewards in the patient's life, then quitting will be extremely difficult compared with patients who have other naturally occurring rewards, such as a strong family social support network.

Our stepped-care harm reduction recommendations are based on the strength of motivation to continue to smoke. Moreover, these recommendations are focused mainly on those who are highly motivated toward continued smoking versus those with lower motivation. The rationale is that those with low motivation for continued smoking might possess adaptive coping skills, strong social support networks and/or higher functioning that bode well for long-term smoking cessation. For those patients, we recommend standard treatment that starts with physicians' clear and frequent advice to stop smoking and progresses to combined cognitive-behavioral skills training with pharmacotherapy (specifically bupropion or NRT).

Stepped-Care Harm Reduction

With those who are highly motivated to continue smoking, thus presumably more difficult to treat, the initial goal should be to increase motivation to reduce smoking by providing simple treatment goals that instill intrinsic motivation. (For example: When I reach my goal this week, I will reward myself by splurging on a new sweater; in the unlikely event that I don't reach my goal, not only will I not have a full session with my doctor, I will have to engage in an aversive but useful task such as volunteering for an extra dish duty.) Patients are actively dissuaded from making goals that are perceived as unattainable in light of the baseline assessment.

Patients may falsely report being motivated to reduce smoking in order to gain more patient contact hours beyond usual care. This may be indicated by discrepancies between patients' motivational reports and signs of noncompliance with requests for more contact. In such cases, we recommend withholding additional patient contact (beyond usual care) until patients show that they comply with the simple and obtainable treatment goal of the week. Our rationale for this recommendation is to promote/reinforce proactive and adaptive coping by using additional patient contact as the reward.

As patients acclimate to these techniques, psychiatrists should also evaluate the feasibility of switching patients maintained on typical antipsychotic medications to atypical antipsychotics. Atypicals have been shown to reduce cigarette smoking spontaneously, presumably because the medication side effects that partially reinforce smoking and the neurobiological substrates that prime smoking are controlled, at least to some degree (Combs and Advokat, 2000; McChargue et al., 2002a; McEvoy et al., 1999). Given that several atypicals are metabolized via the cytochrome P450 1A2 system (e.g., olanzapine [Zyprexa], clozapine [Clozaril]) and smoking influences the cytochrome system, it is important to monitor blood levels of these agents during the quitting process (Zullino et al., 2002).

The advocated approach to harm reduction is to step up treatment only when stable and consistent reduced smoking is maintained for a long period (e.g., six stable reductions of six months to one year). For the hope of eventual abstinence, stepping up patients to a more intensive treatment approach may be counterproductive without allowing patients to overcome any compensatory behaviors that modulate increased nicotine intake from fewer cigarettes and to establish a firm foundation of alternative coping skills.

After smoking reduction has been stabilized, we recommend employing pharmacotherapy that may help further reduce smoking. This is based on prior research showing that the administration of NRT reduced smoking (Hartman et al., 1991) and biomarkers of smoking toxins without evidence of nicotine toxicity (Dalack and Meador-Woodruff, 1999). As such, NRT appears to be a safe and viable adjunct to harm reduction techniques. If the patient has not spontaneously quit smoking with NRT, then the final step would be to use bupropion in addition to NRT.

Reductions and increased quit rates have been documented for patients on bupropion (Evins et al., 2001; George et al., 2002). Although there may be some concern about bupropion's effect on positive psychotic symptoms, prior studies have not reported deleterious increases in positive symptoms (Evins et al., 2001) and have shown reductions in negative symptoms in at least one study (George et al., 2002).

Summary

The stepped-care approach reinforces change in a graded fashion until abstinence is reached. It is important to note that slow and small changes may lead to longer and bigger changes across time. Because a patient's level of motivation to stop smoking will wax and wane more than that of a typical smoker, it is important to continue to reassess patient motivation.

It is recommended that biomarkers of nicotine toxins (e.g., carbon monoxide levels) be tested in order to assess the overall effect of these harm reduction approaches and to see if patients truly are reducing their exposure to the harmful effects of nicotine.

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References

Combs DR, Advokat C (2000), Antipsychotic medication and smoking prevalence in acutely hospitalized patients with chronic schizophrenia. Schizophr Res 46(2-3):129-137.

Dalack GW, Meador-Woodruff JH (1999), Acute feasibility and safety of a smoking reduction strategy for smokers with schizophrenia. Nicotine Tob Res 1(1):53-57.

de Leon J, Dadvand M, Canuso C et al. (1995), Schizophrenia and smoking: an epidemiological survey in a state hospital. Am J Psychiatry 152(3):453-455.

Evins AE, Mays VK, Rigotti NA et al. (2001), A pilot trial of bupropion added to cognitive behavioral therapy for smoking cessation in schizophrenia. Nicotine Tob Res 3(4):397-403.

George TP, Vessicchio JC, Termine A et al. (2002), A placebo controlled trial of bupropion for smoking cessation in schizophrenia. Biol Psychiatry 52(1):53-61.

Hartman N, Leong GB, Glynn SM et al. (1991), Transdermal nicotine and smoking behavior in psychiatric patients. Am J Psychiatry 148(3):374-375.

McChargue DE, Gulliver SB, Hitsman B (2002a), A reply to the commentaries on schizophrenia and smoking treatment: more research is needed. Addiction 97(7):799-800.

McChargue DE, Gulliver SB, Hitsman B (2002b), Would smokers with schizophrenia benefit from a more flexible approach to smoking treatment? Addiction 97(7):785-793.

McEvoy JP, Freudenreich O, Wilson WH (1999), Smoking and therapeutic response to clozapine in patients with schizophrenia. Biol Psychiatry 46(1):125-129.

Spring B, Pingitore G, McChargue DE (2003), Reward value of cigarette smoking for comparably heavy smoking schizophrenic, depressed, and nonpatient smokers. Am J Psychiatry 160(2):316-322.

Zullino DF, Delessert D, Eap CB et al. (2002), Tobacco and cannabis smoking cessation can lead to intoxication with clozapine or olanzapine. Int Clin Psychopharmacol 17(3):141-143. ❐