

Treating tobacco use and dependence in kidney transplant recipients: development and implementation of a program

Tobacco use adversely affects transplant outcomes such as graft survival, patient survival, and other conditions that alter transplant patient longevity. Especially concerning is tobacco's relationship to cardiovascular disease, the number 1 cause of death in kidney transplant recipients. Many authors conclude that tobacco interventions ought to be provided to patients and sometimes lament that there are no tobacco dependence interventions designed for kidney transplant recipients. European Best Practice Guidelines for Renal Transplantation also support tobacco dependence interventions. The purpose of this article is to describe one institution's experience in implementing the clinical practice guideline for treating tobacco use and dependence within a kidney and pancreas transplant program. (*Progress in Transplantation*. 2006;16:33-37)

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Program Development

Rationale

Tobacco use is the single greatest cause of morbidity and mortality in the United States. Approximately 50% of American adults have a lifetime history of smoking tobacco, and half of them currently smoke.¹ The amount and prevalence of tobacco use in the United States prompted the surgeon general to call on all healthcare providers to assess and intervene in tobacco use.² The Centers for Disease Control and Prevention (CDC) designated the prevalence of cigarette smoking as a nationally notifiable condition in 1996.³

Tobacco use poses both general and transplant-specific risks. Tobacco use is a known cause of cardiovascular disease (stroke, aortic aneurysm, ischemic heart disease), cancer (lung, upper respiratory, bladder, pancreas, esophagus, stomach, kidney, leukemia), and chronic obstructive pulmonary disease.⁴ In addition, tobacco use is associated with the progression and/or etiology of conditions such as peripheral vascular dis-

ease, cataracts, hip fracture, periodontal disease, birth defects,⁴ poor circulation,⁵ cognitive decline,⁶ impaired wound healing, and diabetic foot disease.⁷

Tobacco harms not only the transplant recipient, but also the donated organ that is in scarce supply. Specific to kidney transplantation, tobacco use is associated with higher rates of graft loss,⁸⁻¹⁰ mortality,^{8,9,11,12} cardiovascular disease,^{8,13} and cancer.^{8,14,15} Among other transplant populations tobacco is related to pancreas graft loss,¹⁶ cancer (heart),^{17,18} vascular complications (liver),¹⁹ vasculopathy (heart),¹⁷ and mortality (heart).¹⁷ Furthermore, tobacco use is a major etiological factor in cardiovascular disease, which is the leading cause of death in kidney transplant recipients and disproportionate to the risk of the general population.²⁰ In addition, tobacco, classified by the Environmental Protection Agency as a "known carcinogen,"²¹ may pose an even greater threat of cancer in immunocompromised populations compared to the general public. In contrast, tobacco cessation is linked to reduced medical risks in

both transplant^{8,9,19} and other populations.^{22,23} Some transplant programs view smoking as an absolute contraindication to kidney transplantation.²⁴ In a 2000 survey of US transplant programs, 8% of kidney and 15% of kidney-pancreas programs listed smoking as an absolute contraindication to transplantation (with 48% and 35% survey response rates, respectively). Expert guidelines on transplant recipient care recommend smoking cessation for transplant candidates.²⁵

Pretransplant evaluations represent a “window of opportunity” in terms of patient readiness to quit. Factors such as healthcare provider advice to quit²⁶ and high disease severity²⁷ are known to increase tobacco cessation rates in other populations. Healthcare provider interaction and salient disease severity are inherent in the pretransplant evaluation. During the typical evaluation, multiple healthcare providers interact with the patient and can offer sound medical advice to quit (as opposed to a friend or family member without medical training). End-stage renal disease nominally marks high disease severity and the patient is in the clinic to review transplantation as an end-stage treatment.

After providing advice to quit, healthcare providers should be prepared to offer treatment options or a referral to a tobacco treatment program. Access to tobacco cessation programs may not be readily available to many patients. If the tobacco cessation program is integrated into the pretransplant evaluation, the patient can start treatment on the day of evaluation. Implementing such a program can be achieved with interdisciplinary collaboration.

Implementation

We implemented our program in a stepped approach (Table 1). Our first step was to ensure team awareness of the risks associated with tobacco use in transplant populations. We accomplished this through presentation at our weekly transplant center conference (S.L.E., unpublished data, 2004). The second necessary step was to receive support for the program from interdisciplinary team members—medical and surgical directors, nephrologists, physician assistants, nurse coordinators. After the presentation, 2 kidney transplant team members, a physician’s assistant and a nurse coordinator, expressed interest in starting a tobacco cessation service for their patients in collaboration with the presenter (psychologist). The investment of these 3 members was important to eliciting cross-discipline collaboration for integrating tobacco dependence treatment into routine care.

Third, we aimed to maximize patient accessibility to the program. Lower socioeconomic status is related to poorer healthcare accessibility,²⁸ and our medical center is surrounded by some of the poorest counties in the nation.²⁹ Patients frequently must travel long distances for pretransplant evaluations, often with

Table 1 Implementing the clinical practice guideline for tobacco use and dependence

Step 1 Team awareness	Increase team awareness of the potential impact of tobacco on their patients and donated organs.
Step 2 Team support	Elicit support from multidisciplinary team members to effectively integrate the guideline into routine care.
Step 3 Patient accessibility	Analyze the most efficient way to ensure patient access to the intervention.
Step 4 Intervention resources	Secure a provider, finances, space, and time to implement the intervention.
Step 5 Patient identification	Create a system to identify tobacco users.

great effort to arrange transportation, and are not likely to come back for optional follow-up services. We quickly established that the most efficient method of intervention would be a 15- to 20-minute visit in the pretransplant clinic, with follow-up telephone calls.

The fourth step in program implementation was to obtain resources to support the program (ie, a provider, finances, space, and time). At our institution, clinical health psychologists are part of the transplant team and conduct comprehensive psychological evaluations via consultation requests. However, insurance reimbursement for treating tobacco dependence varies with the policies of individual state Medicaid programs and private insurance companies. Fifteen states offered no coverage for tobacco dependence treatment under Medicaid in 2001.³⁰ The rate of reimbursement had not been tested in our psychology clinic, so the psychology clinic director agreed to a 6-month trial service to test the financial feasibility of the program. (The possibility of including this program in the contracted psychological service package was discussed for future negotiations.) Space and time limitations also had to be addressed. Each patient is given a 1-day schedule with an average range of 3 to 4 provider appointments in the afternoon, after morning clinic. We chose a 2-hour slot immediately after the patients’ education session, located in the same room. Patients alternate different provider sessions with each other (eg, tobacco cessation, social work, blood draw) within this 2-hour time span.

Once we had appropriate resources secured, the final step was to develop a system for identifying patients who might benefit from the intervention. The guideline recommends that current users be referred for cessation, while past users be referred for relapse

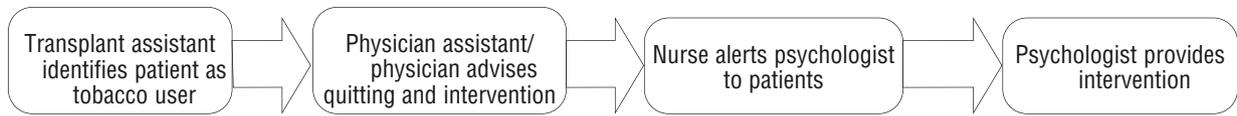


Figure 1 Flow chart of interdisciplinary program.

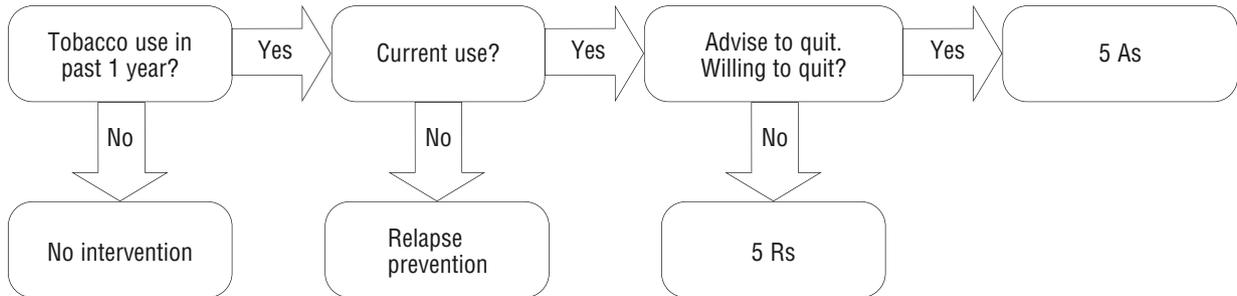


Figure 2 Adapted algorithm of our brief tobacco intervention.

prevention. However, the guideline does not specify at what point a previous user does not need relapse prevention (eg, Should we refer someone who quit 1 year ago? Five years ago?) For our program, we decided to refer anyone who had used tobacco in the previous year, on the basis of the statistic that over 90% of unaided general population quitters relapse within 1 year.¹ The transplant assistants (office support staff) were designated as the first line of tobacco screening during an initial telephone interview. The physician assistants and physicians served as a second line of screening, and were asked to stress the importance of quitting and recommend the intervention. The nurse coordinators were designated to communicate details of the daily patient presentations (eg, history of and current tobacco use, pertinent comorbid conditions) to the psychologist. The psychologist was designated to provide the intervention (Figure 1). Involving several providers emphasizes the importance of quitting, and counteracts the finding that healthcare providers with a history of tobacco use are less likely to encourage tobacco cessation in their patients.³¹

Intervention

National Guideline

The clinical practice guideline for Treating Tobacco Use and Dependence² was used to formulate our brief clinical intervention. This guideline recommends treatment on the basis of each patient’s readiness to quit tobacco. Patients are categorized as willing to quit, not willing to quit, or having previously quit. Patients are initially treated according to the “5 As”: Ask if patient is using tobacco, Advise to quit, Assess willingness to quit, Assist patient in quitting, and Arrange follow-up contact. Patients who are unwilling to quit are

switched to a motivational intervention according to the “5 Rs”: Relevance that quitting tobacco has personally, Risks of use (acute, long-term, environmental), Rewards of quitting (eg, setting a good example for children, health), Roadblocks to quitting, and Repetition of previous steps at next patient contact. Patients who have already quit are provided with a relapse prevention intervention. At minimum, relapse prevention includes reviewing the patient’s personal benefits gained by quitting, success (eg, duration of smoking cessation), problems encountered, and anticipated threats to abstinence. Anticipated threats to abstinence should become intervention targets (eg, low social support for abstinence, negative mood/depression, habit, withdrawal symptoms, weight gain, lagging motivation/feelings of deprivation). Figure 2 presents our intervention algorithm, adapted from the clinical practice guideline.²

Tailored Intervention

Before implementing the general clinical guideline (5 As, 5 Rs, or relapse prevention), the psychologist describes the purpose of the session to the patient. The patient is told something such as, “You probably know that tobacco is the leading cause of death and disease in our country. Recent research suggests that tobacco might also increase transplant patient risk of losing the donated organ and earlier death. The transplant team believes it is important for you to quit, so they created this program.”

Each patient’s tobacco history, medical status, and ethnicity are used to tailor counseling strategies and treatment recommendations. Current patient medical conditions that might be exacerbated by tobacco use are identified to the patient (eg, erectile dysfunc-

tion, hypertension). A tobacco use history is taken (age of onset, average daily use, change in use associated with medical events), including known moderators of cessation success (eg, level of physical dependence, alcohol use, weight concern, social support for quitting, self-efficacy for quitting, exposure to environmental tobacco smoke, and depressive symptoms). All patients are offered a general educational pamphlet on smoking cessation, available from the CDC. Spanish-speaking patients are offered the Spanish-language version of this pamphlet. African Americans are offered an additional CDC pamphlet that incorporates culture-specific aspects of tobacco use.

The psychologist helps the patient to stop smoking, increasing motivation to quit or preventing relapse. A tripartite model of dependence is described to each patient—physical addiction, stress-response, habit,³² as shown in Table 2—and related reasons for tobacco use and past relapse are identified (eg, withdrawal, stress, anger, boredom, smoke exposure); the patient is encouraged to develop alternative responses to these relapse risk factors. If a patient has a significant level of physical dependence, nicotine replacement therapy may be prescribed by his or her local physician, via consultation with the team physician assistant who is alerted by the psychologist. Bupropion may be prescribed in the same manner, especially if significant depressive symptoms are detected. Treatment referrals for psychological distress and disorder are also occasionally made, especially when psychological distress represents a relapse risk factor for the patient. Once patients quit smoking, they are asked to promise themselves that they will call a tobacco help line (provided with intervention materials) before ever consuming tobacco again for their entire lives. Finally, patients are called for a very brief follow-up at 1 week, 1 month, 2 months, 6 months, and 12 months after evaluation to aid problem solving and support complete tobacco abstinence.

Ethical Implications

Our intervention program is voluntary. Tobacco cessation is mandatory only for diabetic patients and patients with significant peripheral vascular disease. Discussions regarding tobacco use as a factor in organ allocation decisions in our transplant center can be roughly dichotomized into those supporting a tobacco cessation requirement on the basis of available current evidence and those opposed to a tobacco cessation requirement on the basis of “insufficient” current evidence. Similar debates abound across and within transplant centers.²⁴ Some studies have suggested discussing tobacco cessation as a prerequisite for transplantation.^{8,17} We are not aware of any publication that focuses on the ethical implications of instituting or not instituting such a prerequisite. Clearly, there is a pressing demand for further research into the relationship

Table 2 ASH: Patient-friendly description of tobacco use and dependence³²

Type of dependence or reason for use	Explanation	Example
A- Addiction	The body's level of nicotine tolerance and withdrawal	Patient's favored cigarette is the first one in the morning.
S- Stress-response	Using more tobacco when experiencing stress	Patient smokes more when angry.
H- Habit	Linking tobacco use to routine activity	Patient smokes while driving and after meals.

between tobacco use and transplant outcomes. We are currently evaluating our tobacco use policy and the design, implementation, and outcomes of this treatment program.

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Copies of the clinical practice guideline “Treating Tobacco Use and Dependence” and patient guides described in this article may be obtained from the Centers for Disease Control and Prevention at (770) 488-5705.

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