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Comprehensive Smoking Cessation Programs

SMOKING CESSATION

**You are listening to ReachMD XM 157, the channel for medical professionals. Welcome to medical breakthroughs from the University of Pennsylvania Health Systems with your host Northwestern University Internist, Dr. Lee Freedman.**

**There are obvious hurdles to crossing the river of nicotine addiction what are these and how come we help fare you patience across. Joining me today to discuss smoking cessation is Dr. Frank Leone a pulmonologist and director of the comprehensive smoking treatment programs at the University of Pennsylvania.**

**Dr. FREEDMAN:**

Dr. Leone, thank you so much for being with us.

**Dr. LEONE:**

Oh thanks for having me Dr. Lee.

**Dr. FREEDMAN:**

Is our looking at nicotine as the addictive component of cigarettes the right thing for us to be focusing on?

**Dr. LEONE:**

Oh obsoletely, we had known for few decades that nicotine was the addictive component of tobacco in all of its forms what we have not really appreciated is the true nature of nicotine dependence and how strong nicotine dependence is compared to other substances of addiction.

**Dr. FREEDMAN:**

And is that something that develops right away when you start smoking or it takes longer time to develop.

**Dr. LEONE:**

Generally it develops pretty quickly. Nicotine dependence is a function not just of genetics what kind of infrastructure you inherit from

your parents, but also of the nature of your exposure and in fact the timing of your exposure. You need to really be exposed to nicotine during a period of rapid CNS development so typically adolescence who are just in the phase where they are beginning to experiment and express their independence in their adult decision making capacity, expose themselves, adjust longtime in CNS development creating a brain or an infrastructure that is particularly prone to needing nicotine in order to function well.

**Dr. FREEDMAN:**

So these young people are really at their most vulnerable when they start experimenting with cigarettes.

**Dr. LEONE:**

Exactly right.

**Dr. FREEDMAN:**

And is there a way to quantify how persuasive or addictive nicotine is?

**Dr. LEONE:**

Well animal models that have looked at the addictive potential of nicotine abused rodents, rats and mice and set them up in various paradigms of learning, so for example if nicotine has the ability to reinforce a lever push behavior in animals just as easily as other more obviously reinforcing substances such as alcohol or heroin. The interesting thing about nicotine is that if you place a disincentive such as an electric pad or something in front of the lever the rodents are more likely to give up alcohol and/or heroin earlier at less of a disincentive that may or to give up the nicotine in fact many of the nicotine addicted rats will sustain lethal shock to the pads in an attempt to get at that lever.

**Dr. FREEDMAN:**

So this is not just a matter of wanting to look cool, wanting to stay thin, ignorance of the health consequences. This is a powerful chemical driving force.

**Dr. LEONE:**

Absolutely nicotine works by hijacking the survival instinct centers in the brain and compelling the person, the smoker to behave to seek out the cigarettes despite the fact that the cognitive part of the brain might be saying you know what I do not think this is good for me I really have to stop and so it is that irreconcilable conflict between the instinctive portion of the brain pushing the smoker to smoke just once more and the logical side of the brain saying I wish I did not have to smoke and smokers then have to sort of deal with and they deal with that by coming up with all kinds of reasons why they need to continue smoking, stress.

**Dr. FREEDMAN:**

Do you think the power of the addiction is widely appreciated by health care providers?

**Dr. LEONE:**

Yeah, I am not sure, I think that we have been taught in the past that a measure of the strength of the addiction has to do with how violent or dramatic the withdrawal symptoms are, so if you think about it, we frequently think about heroin as very addictive because the withdrawal from heroin is very dramatic. There is seizures, dope sickness and all kinds of great thing that happen when a person withdraws, but in fact the power, the addictive potential, the ability to compel behavior has more to do with the subtlety of the withdrawal symptoms, so nicotine withdrawal has no seizures associated with it. Has no vomiting. There is very little autonomic disturbance. What

happens instead is that people feel a visceral low-grade panic is they cannot resolve that compulsion if they cannot get to their cigarette, so which will frequently hear in your office is yeah, yeah I got to quit, I am going to quit, I really I am going to quit, I am going to quit when finally comes down to that minute that moment of putting the cigarettes down it is very unnerving for the smoker and they tend to push on it put if off say I will do it, I just cannot do it right now.

**If you have just tuned in and you are listening to medical breakthroughs from University of Pennsylvania Health System on ReachMD XM 157, the channel for medical professionals I am your host, Dr. Lee Freedman and Dr. Frank Leone is with us discussing smoking cessation. He is the director of the comprehensive smoking treatment programs at the University of Pennsylvania.**

**Dr. FREEDMAN:**

So Dr. Leone we have a very powerful chemical stimulus that which seem to me to lead to chemical treatments for this and I know we do have some could you outline those for us.

**Dr. LEONE:**

Sure, I think the main objective of treating patients with pharmacotherapy is to in essence really trick the brain into thinking that it is still smoking A scientific way of thinking about it is give the smoker an opportunity of mechanism to resolve that ambivalence, that nervousness, that low-grade panic that they may feel when they encounter a trigger driving, the telephone, boredom, meal or whatever and they do not want to allow themselves that cigarette. They need a mechanism dealing with that low-grade panic. So medications to help with this problem can be thought of in 2 main classes or drugs. There are controller medications designed to help reduce the frequency and intensity of withdrawal symptoms and near reliever medications, which can be thought of is helping the smoker to resolve that need, the craving. Controller medications will start with the class of medications that are essentially around that work by replacing the levels of nicotine in the blood the main controllers the nicotine patch. In general you start of just like in the asthma paradigm you start of high gain control and then back off on a dose and so typically to the average smoker, the physician would prescribe a 21 mg patch daily to try and reduce the frequency intensity of cravings and then allow that patient the opportunity to tell you when they are starting to feel better, when they are starting to feel in more control, and then back off on the dose accordingly.

**Dr. FREEDMAN:**

So you do not subscribe to particular length of time at each level of the patch really listen to your patient.

**Dr. LEONE:**

Absolutely, I think you listen to your patient for 2 reasons. First, it is just a better medicine. We have a much better relationship with our patients when they correctly identify us as being more concerned about their needs and their concerns than we are about the directions on the package. It is more safe and there is no downside to it. There is no reason to follow the directions on the package more closely than you follow the direction that yours patient is giving you. The other side of that is that there is lot of evidence that supports the notion that prolonged treatment improves prolonged cessation rate and it is completely safe. You know 6 weeks of treatment is good, 10 weeks of treatment is better, and 24 weeks of treatment is better than that.

**Dr. FREEDMAN:**

And do you prefer the patch delivery system as opposed to gum or the inhaler with nicotine replacement.

**Dr. LEONE:**

The nicotine replacement products also comes as gum, lozenge, inhaler, comes as a nasal spray each of these has the ability to resolve which is referred to as acute cue-induced cravings. The reason for that is the kinetics of delivery for those agents is little bit faster of

course than those sustained patch. So for example the gum reaches its maximum level of nicotine within about 7 to 10 minutes after you use it whereas the patch can take 2 hours to get to the maximum level of nicotine, so what patients generally do is I recommend that they put the patch on and then use some acute form of nicotine in order to relieve any cravings that come along because cravings are inevitable and we have to give them the opportunity to deal with that.

**Dr. FREEDMAN:**

Almost that asthma paradigm again a controller and then a quick reliever.

**Dr. LEONE:**

Absolutely. So if we help our patients understand that quitting is very important, but do not give them anything to resolve or deal with that panic that they are likely to feel. The question is in their mind all the time is what if, what if I need a cigarette and I cannot have one, what would I do. We are best served in achieving our goals by answering that questions and dealing with their question before they even ask it, so by prescribing a combination say for example of the patch with inhaler we are telling them that we acknowledge the fact that there are going to be times when they would really like to have a cigarette and what should they do about that how do they handle that, we give them instructions use your inhaler couple of puffs of the inhaler every hour as needed and that gives them the message that there is in fact something active that they can do to relieve a craving rather than simply passively waiting for craving to go away.

**Dr. FREEDMAN:**

That has to be so effective at reducing that panic and an anxiety that you have described.

**Dr. LEONE:**

Yeah, people need to feel like they can actively control what is about to happen to them. We all know that, you know control is sort of it is evasive sometimes we cannot guarantee control, but we can improve their chances of controlling what is happening to them if we give them the appropriate tools and appropriate instructions.

**Dr. FREEDMAN:**

How about bupropion and Chantix.

**Dr. LEONE:**

So the other class of medications that have been used are medications that work more downstream in the effect, so if you think about the effective nicotine on the parts of the brain responsible for survival instincts downstream, from that there is a significant dopamine release in the reward centers of the brain and after years of using cigarettes those rewards centers biology on those reward centers is disturbed. If I, sort of withdraw nicotine from you, those reward centers do not have the ability to sort of just tick it up and work normally just like that. So one thing that we can do is essentially pretreat our patients with bupropion. It is marketed as Zyban or Wellbutrin and the dose for that is 150 mg twice a day. The way to use that is to treat your patients for several weeks before asking them to put the cigarettes down. It takes about 14 days for that medication to reach its maximum effectiveness in the brain. So it does not make sense to ask your patients to quit smoking before the medication has had a chance to really do its job.

**Dr. FREEDMAN:**

Get them there and pump up those dopamine levels.

**Dr. LEONE:**

It is exactly right and you know what is really unique thing about both Zyban and Chantix is that you get to tell your patients do not stop smoking just yet when a smoker hears doctor say do not stop smoking just yet this is incredible sense of relief, incredible sort of joining experience they see that you understand their perspective.

**Dr. FREEDMAN:**

I want to thank Dr. Frank Leone the director of the comprehensive smoking treatment programs at the University of Pennsylvania.

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