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Do Smoking Cessation Medications Actually Cause Suicide?

Recent information from the US Food and Drug Administration and independent review groups has suggested that several medications marketed for or developed for smoking cessation are associated with suicide. Whether these associations are because 1) the medications actually cause suicide or 2) smoking itself causes suicide or 3) stopping smoking causes suicide, is not clear. An article in the current issue of "*Drug and Alcohol Dependence*" provides a brief overview of the evidence for these three possibilities.

Dr. John Hughes, MD, a psychiatrist at the University of Vermont reviewed 180 abstracts and 120 published papers. He first concluded that smoking itself is reliably associated with suicide. Smokers are 2-10 times more likely to think about suicide, try suicide or commit suicide than never-smokers. The three most plausible (but relatively untested) explanations are that smokers have pre-existing conditions that increase their risk for suicide (e.g. depression), that smoking causes painful and debilitating conditions that might lead to suicide, and that smoking decreases two brain chemicals - serotonin and monoamine oxidase levels - both of which have been previously linked with suicide.

Dr Hughes reports that stopping smoking appears to lead to clinically significant depression in a small minority of smokers; thus, it might be expected to induce suicide; however, in the few tests, smoking cessation has surprisingly not been associated with suicide, but this may because it has not been adequately tested.

Finally, Dr. Hughes reports that several regulatory agencies have reported that three medications used for smoking cessation - rimonabant, burpopion and varenicline – appear to be associated with suicide. The concern about rimonabant (which is not licensed in the US) is based, not on studies using it to treat smoking, but on studies using it for obesity. In these studies, overweight persons who were randomly assigned to rimonabant, were twice as likely to have suicidal ideation; however, the incidence was rare (< 1%). Bupropion and varenicline (both licensed in US) were not found to have greater rates of suicide in the treatment studies but post-marketing data found some smokers (< 300 for each) using these medications reported suicidal thoughts or attempts. However, given millions of smokers have used each of these medications, given that smokers are more likely to have suicidal ideation, and given no convincing biological reason to think these would cause suicide, whether these reports are greater than what would be expected is unclear. Dr Hughes suggests further studies that should help clear up whether these later two medications actually cause suicide.

Dr Hughes receives consulting fees and grants from many pharmaceutical companies including the makers of rimonabant, bupropion and varenicline.

Drug and Alcohol Dependence is the official journal of the College on Problems of Drug Dependence (www.cpdd.org), the largest and oldest organization for the scientific study of drug dependence. The peer-reviewed Drug and Alcohol Dependence (www.elsevier.com/locate/drugalcdep) is published by Elsevier Science Inc., a leading

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Contact:

John R. Hughes, MD
Department of Psychiatry
University of Vermont
UHC Campus, OH3, Stop #482
1 South Prospect Street
Burlington, VT 05401
john.hughes@uvm.edu