Editorial

Tobacco, Tobacco Control and COVID-19: Understanding Their Associations

Tabaco, control del tabaco y COVID-19: comprender sus asociaciones

Health was always considered important but the COVID-19 pandemic has undoubtably brought it to the very front of most peoples' priorities. Never before would the majority of people have placed safeguarding health of the individual and community so far ahead of safeguarding the economy. In Europe we see this in the lockdown of so many aspects of economic life. The stopping of manufacture, distribution and sale of all but essential goods. Discontinuation of all but essential services, closure of entertainment venues and activities. Society and leadership has agreed to all this because of the value placed on sage guarding health and life.

The loss of life from COVID-19 has been great, some 4 million deaths globally to date. In the same time the estimate for deaths from tobacco related disease is more than 9 million.

Deaths due to tobacco are entirely preventable and would only cost a fraction the cost of the pandemic to prevent but it is not forthcoming for complex reasons.

The associations between tobacco and COVID-19 can be considered under a number of headings.

Tobacco and SARS-CoV-2

There is a biological relationship between tobacco, nicotine and the SARS-CoV-2 virus which causes COVID-19. In this regard it is known that nicotine has a pharmacological relationship with angiotensin converting enzyme (ACE) and ACE-2. Current evidence indicates that the relationship between ACE-2 and the entry of SARS-CoV-2 into pulmonary tissue is mediated by TMTRSS2 activation through the Spike (S) protein on the virus. Research has demonstrated that there is upregulation of ACE-2 in small airway epithelium (SAE), trachea and mucous cells in smokers and patients with COVID-19.[1] The results showed a dose-response relationship with smoking status such that ACE-2 expression was higher in current than former smokers, than never smokers, with the ACE-2 levels found to be related to the degree of pulmonary function impairment with a greater deficit showing higher ACE-2 levels. These findings are corroborated by those of other publications, including a meta-analysis from Cai et al.[2] showing similar findings.[3,4] Notably, although further work is needed to define the role of nicotine or indeed upregulation of ACE-2, it is possible that ACE-2 upregulation may explain the increased risk of severe COVID-19 in these populations, highlighting the importance

of smoking cessation for these individuals, and increased surveillance of these risk subgroups for prevention and rapid diagnosis of this potentially deadly disease.[5]

Whatever the mechanism there is strong evidence that smoking has a detrimental effect on the progression of COVID-19 and mortality.[6] A meta-analysis by Patanavanich and Glantz[6] showed that, among COVID-19 patients, the risk of progression (severity or mortality) was significantly higher (OR = 1.91; 95% CI: 1.42–2.59) for ever smokers compared with never smokers and more recently Jiménez-Ruiz et al. have published similar results.[7]

Simons et al.[8] found at least 17 cohorts, providing a pooled relative risk (RR) of 0.74 (95% CI: 0.58–0.93) for current and 1.05 (95% CI: 0.95–1.17) for former smokers. Many of the cohorts were based on participants selected among those subjects voluntarily going to be tested for COVID-19, most likely because they had respiratory symptoms. Given that smokers are tested more frequently than never smokers, these studies suffer from an important selection bias due to an over-representation of current smokers in their populations. Better planned and structured studies should now be implemented to more fully understand the role of smoking in COVID-19, with data on smoking and other tobacco products in COVID-19 collected and analyzed with attention to avoiding the many biases that present data reveal.

Tobacco control policies during COVID-19

There is now, perhaps, the best opportunity in two centuries to stop the devastation caused by tobacco.[9] People all over the world have shown the importance they attach to health and life. COVID-19 poses a unique opportunity for combatting tobacco use. Notably, among policies implemented during the lockdown in countries such as South Africa, India and Botswana was a ban on the sale of tobacco and nicotine products.[10] But so far lockdown tobacco bans have had both positive and negative impacts on tobacco control. In South Africa for example, the lockdown tobacco ban caused many smokers to quit smoking or reduce the number of cigarettes smoked per day.[11] Even in countries where tobacco sales bans were not imposed, studies show that there has been a record number of smokers quitting as a result of the COVID-19 pandemic, and the link between tobacco use and developing worse symptoms of COVID-19.[12,13] An important modification to Smokefree Laws is the

Spanish initiative where smokefree has been extended to outside areas.[14] This is an obvious extension to current laws which should be adopted by all countries with effective smokefree laws. While changes in the law may be resisted it is easy to see a strong advocacy case especially now when protection of life greatly supersedes economic considerations.

Smoking cessation

There is need for a coordinated response to the tobacco epidemic at country level. Probably the most important Tobacco Control initiative prompted by the pandemic would be an increase in smoking cessation services. Regrettably many health services, instead of increasing tobacco control efforts, have reduced services because of redeployment of staff to meet the increased need to deal with the pandemic. This is a serious missed opportunity because with smokers, like everyone else, largely confined to their homes now is the ideal time to offer online smoking cessation services. We know there has been an increase in quit attempts and intention to quit. During this period, the World Health Organization also launched *Meet Florence*, the first artificial intelligence quit tobacco initiative. It is also true that more people are facing financial and psychological stress during this time.[14,15] Research in some countries has shown that some smokers increased the number of cigarettes smoked per day during the pandemic.[16] Around the world, the tobacco industry exploited the concerns around the pandemic to seek partnership with governments as well as inducing customers through gifts and promotional items.[17,18]

The lessons that we need to learn from the COVID-19 pandemic include the importance of Article 5.3 of the WHO Framework Convention on Tobacco Control (FCTC) and the need for measures to ensure its implementation at country level to address tobacco industry interference. Governments also need to review their approach to smoking cessation.

The acceptance of the loss of personal freedoms and the huge financial price that society is willing to pay to try to prevent the pandemic is a clear signal to deal with tobacco. The market value of the tobacco industry worldwide is said to be some US$1 trillion by the year 2026[19] whereas COVID-19 has cost many multiples of that figure.[20] Now must be the time to declare that we will not tolerate 7 million deaths per year every year from tobacco addiction due to the deliberate actions of a greedy industry owned by a small number of international companies. We need to transform and eventually close down this industry.[21] If the 20th century was the Cigarette Century[22] the 21st should be the Tobacco-Free Century.

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Conflict of interest

None declared.

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Luke Clancy

TobaccoFree Research Institute Ireland, Focas Institute, City Campus Kevin St, TU Dublin D08NF82, Ireland

E-mail address: lclancy@tri.ie

URLs: http://www.tri.ie