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A Call in Calamity To Observe Impact of Smoking on COVID 19 Infection; Do Nicotine Has Hidden Link?

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Abstract

Tobacco smoking remains the most important preventable cause of cardiovascular related morbidity and mortality worldwide. Smokers die 5-8 years earlier than nonsmokers and also they are more vulnerable to catch severe symptoms from COVID-19 with worse outcome. Furthermore evidence shows that Nicotine has some protective role against Corona virus .Hence if motivated and strategies planned according to current pandemic, COVID-19 presents unique opportunity for tobacco cessation because people are already scared of it.

The aim of this article is to promote and describe smoking cessation strategies along with nicotine patches and reviewing existing research literature on above mentioned subject.

Keywords: Quit Tobacco, Smoking, COVID pandemic.

Introduction

SARS-CoV-2 viral infection has emerged as deadly pandemic worldwide According to updated reports; this virus has caused about 470 million infections and more than 6 million deaths globally (van Westen-Lagerweij et al., 2021). The COVID virus gains entry through respiratory system and causes severe infection along with multisystem involvement. So it is reasonable to assume that the smokers may be affected with worse outcome because their respiratory system is already compromised. But unexpectedly some recent studies have shown low prevalence and percentage of smokers among COVID patients (van Westen-Lagerweij et al., 2021). Questions have been asked if smokers are equally affected and either nicotine has any beneficial effects of protection. It should be realized that tobacco smoking is itself devastating .Currently there are 1.3 billion tobacco users worldwide and over 80% of them live in low- and middle-income countries; where the burden of tobacco-related illness and death is heaviest .Contemporarily about 16 million Americans are living with the diseases (cancer, heart disease, stroke, diabetes and COPD) caused by tobacco smoking (Centers for Disease Control and Prevention, 2020; GBD, 2020).

To give up smoking at any age is beneficial. A meta-analysis revealed that smoking cessation reduces the rate of heart diseases and stroke events and can increase life expectancy. On average women who quit smoking by age 35, add about 3 years to their life expectancy and men add more than 2 years to theirs. Smoking cessation can be beneficial even for those who stop after age 65 with improvement in symptoms of COPD (Mons et al., 2015; Centers for Disease Control and Prevention, 2014).

It is reasonable to assume that high level media campaign combined with community programs can achieve success in reduction of tobacco use.2014 Tips campaign was the first federally funded program and as a result of this campaign about 1.83 million persons had attempts to quit tobacco; 1.73 million additional intending to quit within 6 months (Neff et al., 2016). About 400,000 Americans had given up smoking for good owing to 2012 CDC's TIP campaign. Fortunately, about 70% of Americans acknowledge that tobacco use is foul. In 2005 the prevalence of tobacco smoking among adults was 20.9%; however in 2015 it was 15.1%, showing significant decline (Amal et al., 2018). The motivation of population at large for preventive measures may result in big success to give up because people already have awareness about respiratory aspects of COVID disease. It is real time to develop public health measures and inform people about hazards of smoking.

We have collected some systemic reviews to see evidence for risk of smoking and COVID 10 disease pandemic.

Literature Search

Considering the co-relation of this recent outbreak with tobacco smoking and their clinical outcome, some research trials have been accomplished.

Reviewing the research data till last year, a total of 26 observational studies and eight meta-analyses were identified. All observational studies reported the prevalence of smoking amongst hospitalized COVID-19 patients. Eighteen of these observational studies and six meta-analyses had data on smoking status by severity of COVID-19 outcomes. Two meta-analyses reported pooled prevalence of smoking in hospitalized patients using a subset of these studies (between 6 and 13 studies).

Guan Wet al, had the first publications of its kind to reveal that the patient of COVID-19 disease, developed more severe form of disease particularly in those patients with history of tobacco abuse (16.9% of tobacco use in severe cases vs 11.8% in less severe cases (Guan et al., 2020).

Very recently in a meta-analysis (including 11,590 COVID patients) researchers compared the risk of COVID disease progression among smokers and non-smokers. They found that current or former smokers had more critical conditions and had to face worse consequences resulting in death. Overall, the risk of disease progressing was doubled among tobacco smokers as compared to nonsmokers. (OR 1.91, 95% CI 1.42-2.59) (Patanavanich & Glantz, 2020).

Vardavas CI et al identified five studies that reported data on the smoking status of COVID-19 patients. Notably, in the largest study, there were higher number of smokers to be admitted to an ICU, need mechanical ventilation or die compared to non-smokers (RR=2.4, 95% CI: 1.43–4.04) (Vardavas & Nikitara, 2020).

However, 27 observational studies found that smokers constituted 1.4-18.5% of hospitalized adults. Following Meta-analysis determine the risk of severe COVID-19 disease and death amongst smokers?

Meta-Analyses

An analytic study by Guan et al had contributed to most of the cases (1085 out of 1851 cases). Composite end point of their patients was admission in ICU and mechanical ventilation. Among 173 severe cases, proportion of smokers (26) was higher than nonsmokers (Guan et al., 2020).

As we consider the impact of active smoking, the increased risk of severe COVID-19 in an 11 studies meta-analysis was observed. Zhao et al. analyzed data from 7 studies (1726 patients) and found a statistically significant association between smoking and severity of COVID-19 outcomes amongst patient (Zhao et al., 2020).

Other researchers, Zheng et al analyzed 5 studies and reported data of 1980 patients. Their important observation was smoking as single modifying factor among these patients and concluded statistically significant association between smoking and COVID-19 severity (Zheng et al., 2020).

Although Liu W et al had small sample size but results were significant. There were 67 patients (85.9%) in the improvement or stabilized group while 11 patients (14.1%) in the disease progression group. In critical group there was significantly higher proportion of smoker patients than the stabilization group (27.3% vs 3.0%) (Liu et al., 2020).

Nicotine and any beneficial effect

Scientific research determines that SARS-CoV-2 viral particle gains entry into multiple organs particularly in lungs epithelium through angiotensin-converting enzyme 2, the putative receptor for this virus. Nicotine affects renin–angiotensin–aldosterone system by lowering angiotensin-converting enzyme 2 expression, thereby preventing viral particles entry and theoretically may reduce these infection rates (Propper, 2020; Tindle et al., 2020). Nicotine may also modulate through the cholinergic anti-inflammatory pathway, inhibiting macrophage-driven inflammation and platelet reactivity. Nicotinic acetylcholine receptor (nAChR) plays a key role in the pathophysiology of Covid-19 infection .So it is postulated that Nicotine may play some protective role by blocking viral entry into receptors. But so far very few evidence based results are available to see the drug protective role of nicotine and more studies are in progress.

In this contest, recently French researchers have launched a randomized controlled trial of medicinal nicotine to prevent and treat COVID-19 patients with severe illness (Changeux et al., 2020). However Nicotine was recommended preferably as dermal patches'

To be noted that in china about 1/4th population are tobacco smoker. A recent trial has unexpectedly shown the low prevalence of smoking among COVID-19 patients admitted in hospital. They also proposed nicotine as medicinal drug for treatment of corona viral infection (Farsalinos et al., 2020).
Based upon above mentioned a few evidence based facts, do the doctors should allow population at large to light up? The big answer is" NO". Tobacco smoke contains thousands of harmful toxins. However among smokers we can use nicotine as dermal patch as it will also help give up plan.

Real time implications

This COVID outbreak has put everything in place. We have fears and transforming ourselves as per divine law of nature, being more empathic, self-control with restrain. It is needed to educate and help people to give up smoking, use nicotine patches; explaining the fact that this virus directly hits lungs and recent review analysis of most retrieved studies has concluded worse outcome (Eisenberg & Eisenberg, 2020; Umnuaypornlert et al., 2021).

Do fears of contracting coronavirus propel some smokers to quit?

Action on Smoking and Health is an international organization and has estimated that one million people have stopped smoking in the UK since April: it is highest numbers smokers quit in any decade (Schraer, 2020).

Certainly it is logical to presume that stress and scares related to the Corona virus pandemic appears to affect smokers as well .Evidence shows the threat of contracting Corona virus with severe illness might be a motive for smoking cessation and hence we can prevent the complications of smoking (Bommele et al., 2020; Mallet et al., 2020). It is real time to take advantage in positive way and public health care providers must set up plans in health care facilities to help give up smoking among general population.

Providing public health initiatives and helping resources for cessation services with public campaigns had fruitful results. Below we have reviewed useful supportive approaches, already proposed by different authorities.

Personal Quit Plan

Decide to quit abruptly. Evidence shows that abrupt cessation has been found more likely to be successful rather than gradual (Lindson et al., 2016)."Where there's a will there's a way". It is needed to develop strong will of cessation and strictly adhere to it; this is the initial step leading to success.

Quitline

Counseling through quit-line is effective approach particularly if combined with nicotine replacement patches and chewing gums regimes or adjuvant drugs therapy. The first study of its kind was about use of Varenicline tartrate plus Quitline-counselling over 104 week's period compared to quit line approach alone. It was concluded that combination of both was effective opportunistic treatment when initiated for inpatient smokers (Carson-Chahhoud et al., 2020). "Quit smoking before it quits you"

More over if one is ready to quit, then text "Ready" to 200-400 for enrolling in free quit services through the Wisconsin Tobacco Quit Line.

E-cigarettes; attitude and practice

In order to see the habits of public about use of tobacco or e- cigarette during lockdown, it has been observed that e-cig consumption has marginally increased .In a research finding, participants had varying degree of response to COVID-19 .Almost half reported no change in tobacco or e-cigarettes consumption. However, it was observed that in response to corona infection, one third had increased motivation to quit (Klemperer et al., 2020).

In this regards, variability has been observed in different countries. A survey in India showed that population believes about smoking increases the risk of contracting corona infection (Yach, 2020).In Italy, more than half believe that there is no relation between both or vamping (Cattaruzza et al., 2020).
Recently in Netherland an online questionnaire survey was answered by 340 smokers and one-third of the smokers wanted to quit smoking due to the coronavirus .While 67.7% of them believed that virus did not influence the number of cigarettes smoked per day, 18.5% smoked less cigarettes and 13.8% smoked more cigarettes per day due to crisis situation (Elling et al., 2020).

Facebook community

Join the chat on Facebook to be informed discovering more and more run to quit programs, about the progress and to be familiar about the ways how to beat craving. However the desire to change must be greater than desire to stay same.

Phone support

There are counselors and experts who are trained specifically to help smokers quit. One can Call the National Smoke free Helpline on 0300 123 1044 or 800-784-8669.

It seems that social media is potential source for help in cessation plan. Daily support and motivation can be achieved through down loaded app .It is way to provide advice, tips and guidance. If one stay smoke free for the 4-week, it is 5 times more likely to quit for good. Daily email support and encouragement can help to achieve your goal.

To be healer is a privilege. The role of clinicians in above mentioned approaches holds paramount importance. Evidence shows that over 70 percent of smokers see a physician each year but only 20 percent of them receive any give up advice or assistance. Persons whose physicians advise them to quit, are 1.6 times as likely to attempt successful (Pignone et al., 2019).In these perspectives we have found that following step wise strategies in clinical medicine are more recommended for primary care physicians to apply in public and private sector facilities.

Action	Implementation
Step 1.ASK systematically identify all tobacco data collection	
Implement an office wise system and ensure that every patient visit in clinic should be queried about tobacco status.	
Step 2. Advise-strongly Clear ,strong ,personalize	
In clear and strong manner , urge every smoker to quit	"I think it is important for you to give up now and I will help you." Strong. "I need you to know that this decision is most important for you for protecting your health." Personalize and encourage

Step 3. Attempt Assistance and motivation	
	If the patient is willing at this time, provide assistance. If the patient prefers more intensive treatment, refer to the smoking cessation specialist. If a patient is not willing to quit, provide motivational intervention.
Step 4.Assist Aid the patient in quitting	
Help a patient with a quit plan and provide key advice accordingly.	Set the quit date. Help the patient prepare cessation. Inform family friends and coworkers. Review previous attempts. Encourage the use of nicotine patch and nicotine gum therapy. Total abstinence is essential. Research shows abrupt cession is successful rather than gradual[27]. Not even a single puff after the quit date. Drinking alcohol is highly associated with relapse. The presence of other smokers in the household particularly a spouse is associated with low success rate
Provide supplementary material.	Source: federal agencies, American lung association, American Heart Association, Quit lines etc.
Schedule follow up contact.	Timings for follow up with intervals. Steps during follow up: Congratulate success, if smoking relapse occur, review and dentify the problems. Consider refer to more intense program if needed.

Summary

So far reviewing above mentioned published data, one thing is clear that as smoker the risk of getting the corona virus is higher than usual and there is misinterpretation and paucity of results about clear beneficial role of nicotine. Also tobacco is known risk factor for cardiovascular complications so it is high time to plan give up smoking. Here the health care providers needed to contribute a vital role by making quit tobacco initiatives, manage craving by advising nicotine as it has dual effect and rehabilitation plans accordingly.

Make it as an objective with constant determination and good results can be achieved. Health care is human right;facilitate benevolence with quality clinical management because "Kindness is always rewarded."

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