

Research Article

Are Heated Tobacco Products a Pragmatic Middle Ground for Recalcitrant Smokers? - Revisiting the Problem in the Context of the Current Pandemic

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Abstract

Recalcitrant smokers managed for their cardiovascular problems pose a serious challenge to practicing physicians in their efforts to effectively reduce cardiovascular and overall health risk in these patients. This problem has been magnified during the current pandemic, when the already increased health risk of active smokers is aggravated further in the event that they develop coronavirus disease 2019 (COVID-19). Active smoking increases the risk of developing severe COVID-19 by around two folds, and those with chronic obstructive pulmonary disease (COPD)—which many recalcitrant smokers are likely to have already—have a fourfold increase in risk

translating to much poorer clinical outcomes. This is aggravated by the delay in diagnosis since the symptomatology in COPD with acute exacerbation and COVID-19 may significantly overlap.

This predicament with recalcitrant smokers during this pandemic has prompted us to reconsider our previous policy to give up on them after six months of making them quit smoking totally. The current pandemic highlighted the need to explore alternatives that could at least mitigate the cardiovascular and COVID-19 risk of recalcitrant smokers. Based on the potential to reduce health risk and also on patient feedback, we have allowed the use of heated tobacco

products (HTPs) in our recalcitrant smokers who really could not attain total smoking cessation despite all known smoking cessation measures. Quite different from electronic cigarettes, HTPs produce aerosols, still containing nicotine, using a battery-powered heating system device. Based on studies, the amount of toxic substances a smoker gets is up to 95 percent less, compared to traditional tobacco smoking. Though HTPs may be considered a pragmatic middle ground for recalcitrant smokers, there is still some degree of addiction; hence, legislative and regulatory control measures are imperative, so as to prevent the youth and nonsmokers to be “seduced” into trying them. However, these regulatory measures should not be more stringent than what are currently imposed on tobacco smoking since it would defeat the purpose of getting current smokers out of this deadly vice.

Keywords: Recalcitrant smokers; COVID-19; Heated tobacco products; Cardiovascular risk reduction

1. Introduction

A major challenge in clinical practice is dealing with heart patients who may be classified as recalcitrant smokers, defined as those who have an obstinately uncooperative attitude towards smoking cessation. They may show initial efforts of following the smoking-cessation programs we implement in our clinics, but there is an utter lack of perseverance and will to persist until the end goal of complete smoking cessation is achieved.

The doctors in our clinics have tried all known measures of convincing these recalcitrant smokers; i.e., by persuasion, motivation, even combining them with threats on the health hazards they are likely to

only successful in around three out of 10 cases.

More frequently, we reach exasperation point with recalcitrant smokers, and we have decided to implement a policy that if they do not quit smoking in six months, we advise them to go to another clinic for their subsequent follow-up, as we consider ourselves a failure in effectively addressing a major risk factor that they have.

It is always a happy occasion when a few of these “expelled” patients eventually succeed in quitting smoking, and we gladly welcome them back, should they wish to be under our continuing medical care. However, these small victories are dampened when a few, who have already licked the vice previously, slide back and return to smoking. Realizing the stern policy on recalcitrant smokers we adhere to and the six-month grace period for smoking cessation they are allowed, they voluntarily go to other clinics for their follow-up monitoring and management. Some of these recalcitrant smokers decide not to follow up with any doctor at all, and they just maintain the initial drugs they are prescribed, until they develop complications, for which they are rushed to the emergency room.

This stern carrot-and-stick approach towards our smoker-patients has been the standard policy in our practice until the start of the pandemic last year, when we realized we might have been too harsh on our recalcitrant smoker-patients. The pandemic has made us rethink our policy, and explore other means of assisting those who simply could not give up their nicotine addiction.

2. Smoking and COVID-19 Severity

Smoking and coronavirus disease-2019 (COVID-19) definitely make a killer combination leading to a

complicated clinical course and worse outcomes. Majority of our recalcitrant smokers have smoking histories of more than 20 pack years, and already have mild to moderate chronic obstructive pulmonary disease (COPD), which is a major risk factor for developing severe COVID-19 [1].

In a pooled meta-analysis of seven separate studies comprising a total of 1,726 patients, a statistically significant association between smoking and severity of COVID-19 outcomes was shown. This meta-analysis, which included studies on COVID-19 from December 2019 to 22 March 2020, showed that pre-existing COPD was associated with a four-fold increased risk of developing severe COVID-19. The same study also indicated that active smoking increases the risk of developing severe COVID-19 by around two folds [1].

The presence of COPD in our recalcitrant smoking patients raised some clinical challenges since the clinical presentation of COVID-19 may be difficult to distinguish from the symptomatology of acute exacerbation of COPD. Many of these recalcitrant smokers may already have recurrent productive cough. This dilemma in differentiating if it is COPD with acute exacerbation or COVID-19 may cause delayed treatment and appropriate medical intervention, and a worse clinical outcome [1, 2].

Active smoking, even in the absence of COPD, may also increase the risk of recalcitrant smokers for severe COVID-19. Reddy et al. analyzed 47 studies enrolling 32,849 symptomatic and hospitalized COVID-19 patients, with 8,417 (25.6%) in this large pool of patients reporting a smoking history. There is an increased propensity for patients with any smoking history to develop severe COVID-19 and worse in-hospital outcomes. In the group who were

active or current smokers, the risk was highest, with an increased risk of severe COVID-9 (risk ratios [RR]: 1.80; 95% confidence interval [CI]: 1.14-2.85; P = .012), and severe or critical COVID-19 (RR: 1.98; CI: 1.16-3.38; P = .012) [2].

So, this current COVID-19 pandemic is really one of the most adverse developments for recalcitrant smokers. From time to time, we hear of a former patient whom we had “expelled” from the clinic admitted to the intensive care unit for critical COVID-19, intubated for mechanical ventilation, and eventually succumbing to it. Some patients may be fortunate to survive, but only after a stormy clinical course in the hospital for pulmonary or cardiac complications like acute coronary syndrome or congestive heart failure [3].

We could not help but wonder if those who had died could have remained alive if we continued to monitor and follow them up in our clinic [3].

3. Exploring less Harmful Smoking Alternatives

So, since last year, we eased up on our strict policy on recalcitrant smokers, and made a firm resolve to double our efforts to get them to quit smoking. The threat of more severe COVID-19 if they continued to smoke has increased our success rate to around 50 percent. It's quite perplexing, though, that half of our smoker-patients still keep smoking. However, most smokers are simply helpless against their nicotine addiction; and the nicotine dependence has led to a pattern of heavy smoking despite its known health hazards, which is resistant to change [4, 5].

Our main goal is still to make them quit permanently. However, from a non-negotiable policy, we have decided to shift to whatever pragmatic middle-ground

we could find for recalcitrant smokers; since at least half of these smokers, or more than half in the pre-COVID era, simply could not quit.

In our cardiovascular clinics, we are still trying to look for the best middle ground, and still hoping that eventually, we could push them up further to the real safe, high ground of having beaten their addiction completely and permanently [3].

When we explored the possible alternative options, we looked at the studies on vaping or electronic cigarettes (e-cigs), but opted not to consider it since the reports on e-cig- or vaping-product-use-associated lung injury (EVALI) were too much of a concern to ignore. More than 60 deaths and 2,750 hospitalizations due to EVALI have so far been reported [6].

A patient told us about heated tobacco products (HTPs), so we also started reviewing the published data on it. HTPs produce aerosols containing nicotine and other chemicals, which are inhaled by users through the mouth, like the conventional cigarette, but the stick is not lit; it's just heated using a battery-powered heating system device. The inhaled substance still contains nicotine (from the heated tobacco), which makes it still addictive and concerns have been raised on attracting adolescents and the youth, as well as nonsmokers [7]. Based on some studies, the amount of toxic substances a smoker gets is up to 95 percent less, compared to traditional tobacco smoking [8].

There are also short-term studies suggesting it could reduce the inflammatory biomarkers produced by conventional cigarette smoking [9]. Any significant inflammation in the body is expected to lead to adverse consequences, and reducing it could possibly

mitigate these adverse complications, although this has to be still proven with HTPs [3].

Furthermore, there have also been studies on HTPs showing its less impactful effects compared to conventional cigarette smoking on the outcomes of oxidative stress, platelet activation and blood pressure [10, 11].

An unpublished meta-analysis conducted by our group on the effects of HTPs vs traditional tobacco cigarettes (TTCs) on predictors of cardiovascular risk among adult smokers showed a significant reduction in heart rate, and significant increases in flow mediated dilatation and high density lipoprotein cholesterol level in the HTP compared to the TTC groups. There were no statistically significant differences in systolic and diastolic blood pressures, serum low density lipoprotein cholesterol, triglycerides, total cholesterol and pulse wave velocity [12].

Though these studies contribute to our growing knowledge on HTPs and its possible less detrimental impacts on health, larger studies with long term follow-up are still required to corroborate these results.

Hence, based on these preliminary information on less harmful effects of HTPs compared to cigarette smoking, we have allowed our recalcitrant smoker-patients to shift to this alternative, but always reminding them that quitting smoking is the ultimate goal. We hope to be able to provide data later on, if these less harmful mechanistic effects of HTPs could really translate to long-term beneficial outcomes. The jury is still out on its long-term benefit or harm. From where we stand now, HTPs appear to be a relatively less harmful middle ground than traditional smoking.

Even treatment guidelines recognize the equipoise, and encourage being on the side of caution, since there is still “insufficient data” to either recommend or advise against HTPs. According to the World Health Organization (WHO), there is no available evidence to conclude whether HTP use is associated with any long-term clinical outcome—positive or negative—from exposure to the mainstream or secondhand emission [13].

In 2019 statement, the WHO said that the available evidence demonstrates that exposure to harmful and potentially harmful chemicals from HTPs may be lower relative to cigarettes [13].

The American Heart Association also issued a policy statement on tobacco smoking alternatives and cited epidemiological studies on smokeless tobacco use coming from Scandinavia, where a large percentage of men use *snus*, a smokeless tobacco product that contains nicotine, but has relatively low levels of carcinogens and other toxins [14].

With current data, it looks evident that HTPs are likely less harmful than traditional smoking, but are still more harmful than not smoking. This has to be thoroughly discussed with an open mind by not only the medical or scientific community, but the legislators and regulators as well. After all, the lives of tens of millions of recalcitrant smokers may depend on the options we offer them if they really cannot quit smoking [3].

Smokers may be rightfully considered as victims of an addictive disease, and those who cannot quit remain part of the health equation of every nation, just as much as the healthy nonsmokers. They actually need more understanding, more attention, and more care from their physicians, who should aim

for a treatment goal of at least partially protecting them from the cardiovascular and other health hazards of cigarette addiction.

This has to be balanced by the downside of HTPs—that the youth and nonsmokers might be “seduced” into trying them. It cannot be overemphasized that regardless of whether they are heated by flame or electronically, HTPs still contain nicotine, which is highly addictive. This is where legislation and regulation come in. It is essential to have a strict but balanced regulation. However, it should not be more restrictive than currently enforced regulation for cigarettes. Strict control measures must be put in place to prohibit sales of HTPs to nonsmokers and the youth. On the other hand, current smokers must be given the free choice to shift to it, if they wish to, and especially with the guidance of their physician.

Though HTPs are smoke-free, they should still not be allowed in public. Although the harmful particulate pollution they cause is relatively less compared to passive cigarette smoking, the potential harm to secondhand smoke could not be completely discounted [3].

The science on HTPs and other smoking alternatives is still evolving. More data are definitely needed to draw definitive conclusions on its benefit or exact harm. The current pandemic has pushed clinicians to a corner to come up with an immediate palliative alternative to mitigate the potential risk of recalcitrant smokers should they catch the dreaded virus. With the present level of scientific information known about HTP, it appears to be a pragmatic alternative and middle ground to recalcitrant smokers in the context of the current pandemic.

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