



## DOES SMOKING STATUS IMPACT THE SEVERITY OF ACUTE COVID-19?

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### Objective:

### BACKGROUND

Since December 2019 the whole world's focus has been on COVID-19, socially, economically, and especially medically. Professionals are still trying to understand exact pathophysiological mechanisms, diagnostic and therapeutic protocols. Although some entities, like older age, several comorbidities, and immunodeficiencies, are recognized as strong risk factors <sup>1</sup>, the interaction between SARS-CoV-2 and many other patient characteristics is still unknown. One of the most



intriguing areas is the smoking-SARS-CoV-2 correlation since there are many contradictory and potentially "dangerous" data. Tobacco smoking is a known risk factor for numerous chronic diseases, respiratory, cardiovascular diseases, diabetes, cancer, infection, etc <sup>2,3</sup>. All of this would logically lead to the conclusion that smokers are at great risk for COVID-19, however, available data are conflicting. Although some authors reported an increased risk of COVID-19 (including more severe forms of illness) among smokers, others found a "protective effect" of smoking <sup>4,5,6</sup>.

## METHODS

Here we retrospectively analyzed the post-COVID-19 register of University Hospital Zagreb, Clinic for Pulmonary Diseases Jordanovac in Croatia to compare COVID-19 incidence between smokers and nonsmokers. The total of 547 patients was divided into three groups, never smokers (never smoked, or smoked <100 cigarettes), former smokers (smoked >100 cigarettes, quit smoking more than 3 months ago), and current smokers. Further, the severity of illness was compared between the groups, according to the disease severity scale of the Croatian Ministry of Health.

## RESULTS

Out of 547 patients, 501 patients had data on smoking, 315 patients (63%) were non-smokers, 44 (9%) current smokers, and 142 (28%) former smokers, respectively. 544 patients had data on disease severity, 188 (35%) had mild diseases, 257 (47%) moderately severe, 81 (15%) severe, 18 (3%) critical



diseases. 108 (57%) patients with mild illness were non-smokers, 43 (23%) were former smokers, 24 (13%) were smokers. Among patients with moderately severe illness 159 (62%) were non-smokers, 59 (23%) were former smokers, 15 (6%) were smokers. 40 (49%) patients with severe illness were non-smokers, 32 (40%) were former smokers, 4 (5%) were smokers. Among patients with critical illness 7 (39%) were non-smokers, 6 (33%) were former smokers, while 1 (6%) was a smoker.

## CONCLUSION

The correlation between COVID-19 and smoking is complex<sup>7</sup> and yet to be elucidated. In our study, although non-smokers predominated, most of them (84.8%) had a mild or moderately severe illness. Still, no significant differences among smokers and non-smokers were found regarding the severity of the disease. Given the complexity of COVID 19 and different and unknown underlying factors contributing to the development of severe and critical illness, better-structured studies are needed to define the interaction of SARS-CoV-2 and tobacco consumption and prevent the public's misinterpretation of the results. Medical professionals should bear in mind that smoking is a preventable disease-causing almost 7 million deaths annually<sup>8</sup>.