



Letter to the Director

Tobacco as a Source of Microplastics and Respiratory Health



To the Director,

We have read with great interest the editorial by De Granda Orive et al.¹ entitled “Tobacco as a Source of Microplastics (MPs). Tobacco and Environment: World No Tobacco Day 2022”. The article stresses the importance of cigarette filters as a source of MPs. Environmental pollution from MPs in air is a matter of growing concern because of human health implications. Airborne MPs can be directly and continuously inhaled in air environments.² It has been estimated that about 0.3 million tons of potential small microfibers might reach the environment from cigarette filters.

It is reasonable to suspect that smokers may be exposed to inhalation of a greater number of MPs that could reach the lower airway. This could occur because of the deep inhalations they take but also because of the presence of the MPs in cigarettes.

We consider interesting to comment on our experience in this area. We have very recently studied the presence of MPs in the lower airway by bronchoalveolar lavage (BAL) in 44 individuals.³ Of these, 23 (52%) were smokers, 15 (34%) former smokers and 6 (14%) had never smoked. Smokers and former smokers have an average value for cumulative tobacco consumption of 41 ± 4 pack-years. We have found statistically significant differences in MPs concentration in BAL samples according to smoking habits (F -value=8.131, $p=0.001$): active smokers had higher MPs concentrations (5.26 ± 0.52 items/100 mL BAL) compared to former smokers (3.88 ± 0.18 items/100 mL BAL) ($p=0.008$), and non-smokers (3.14 ± 0.21 items/100 mL BAL) ($p<0.001$). The clinical significance of our finding remains to be determined, but initial data indicate that the presence of MPs is associated with increased respiratory impairment.

There is limited data about the presence of MPs in the human respiratory tract. Huang et al. found, in sputum samples, that smokers had more types of MPs compared to non-smokers.⁴ Chen et al. analyzed the presence of MPs in ground glass nodules from surgical samples; these authors observed that in tumor lesions of patients with exposure risk factors such as smoking, the presence of these microfibers was detected more frequently compared to samples of unexposed patients (72% vs. 42%).⁵ All these findings indicate the importance of MPs in cigarettes, not only in environmental pollution, but also in respiratory health.

De Granda et al.¹ have warned about these little known and potentially serious risks of tobacco use in their excellent editorial. We consider that our findings reinforce the editorial's comments and provide objective information on tobacco risks that until now may not be taken into account.

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Conflict of interest

None to declare.

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