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Poster Sessions

Varenicline, a smoking cessation drug, lowers the osteopontin expression in alveolar macrophages

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Backgrounds: Varenicline, a selective partial agonist of the $\alpha 4\beta 2$ nicotinic acetylcholine receptor (nAChR) and a full agonist of the $\alpha 7$ nAChR, is a drug for smoking cessation. We previously reported that varenicline protects porcine pancreatic elastase (PPE)-induced alveolar expansion via $\alpha 7$ nAChR. However, the mechanism remains obscure. The aim of this study was to determine whether varenicline shows protective effect on the upregulated expression of osteopontin (OPN) in the alveolar macrophages (MH-S) obtained from lungs of patients with COPD.

Results: The expressions of OPN protein and mRNA were dose-dependently decreased by varenicline treatment for 24 hr; these decreases reached a peak at 10 μ M varenicline. Next, to elucidate the mechanisms underlying these effects of varenicline, MH-S macrophages were treated with varenicline and $\alpha 7$ nAChR antagonist. Our results demonstrated that $\alpha 7$ nAChR antagonist reversed varenicline-induced lowered expressions of the OPN protein and mRNA.

Conclusion: These findings suggest that varenicline protects against PPE-damaged lung by downregulating the expressions of OPN protein and mRNA via $\alpha 7$ nAChR in macrophages. Varenicline may be one of the most useful medication for patients with COPD.