Microvascular remodeling of nasal mucosa in allergic rhinitis induced by an allergen in Sprague-Dawley rats

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ABSTRACT. This study aimed to observe microvascular changes in the nasal mucosa of Sprague-Dawley (SD) rats with allergic rhinitis (AR) after persistent exposure to an allergen with fluticasone propionate (FP) treatment. Ninety healthy SD rats were randomly distributed into the control group (A, N = 30), the group with continued exposure to an allergen (B, N = 30), and FP treatment group (C, N = 30). The animals of the persistence group were subjected to persistent exposure to an allergen after 7 weeks of modeling of ovalbumin (OVA) provocation in the nasal mucosa for 16 weeks. At the 8th, 12th, and 16th week after OVA provocation, each group was euthanized at each time point: the FP treatment after OVA provocation, and animals of the control group were not stimulated with OVA and were sacrificed at the same time point. The nasal mucosa of 5 animals from each group was analyzed for the expression of vascular endothelial growth factor (VEGF), and another 5 animals were used to make microvascular corrosion casts for a scanning electron microscope. The results demonstrate that FP has a strong inhibitory effect on angiogenesis in AR.
Inhalation of FP had an antiangiogenic effect through inhibition of VEGF expression but does not completely reverse the remodeling of the nasal mucosa in the short term nor does it have complete control over the expression of VEGF mRNA.

**Key words:** Allergen; Nasal mucosa; Fluticasone propionate; Microvascular remodeling