

# **The possible effects of $\alpha$ -tocopherol against amiodarone-treated lungs in rats: vimentin detection, lipid peroxidation assay, and histological and ultrastructural evaluations**

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The purpose of this study was to learn more about the pathogenesis of amiodarone (AD) on alveoli and also the possible preventive effect of  $\alpha$ -tocopherol ( $\alpha$ -T) against these hazards. Rats were divided into 4 groups, one of which acted as a control, the second received  $\alpha$ -T, the third AD, and the fourth AD and  $\alpha$ -T for 2 weeks. Light microscopy (LM), immunohistochemistry, transmission electron microscopy (TEM), and malondialdehyde (MDA) activity were analyzed in sections of lung tissue. Alveoli of lung tissue AD examined with LM showed dilatation of alveolar spaces, aggregation of red blood cells, and narrowing of alveolar septa. When stained with vimentin (VIM), alveoli showed a positive reaction in the majority and a moderate reaction in others. In the pneumocytes of the type II, some cytoplasmic vesicles had been deflated, whereas

others contained lamellar bodies, a damaged nucleus, and vesicles in their heterochromatin. In the interstitial space, collagen fibers with aggregation of red blood cells and a disrupted blood-air barrier were detected. In rat lung alveoli treated with AD and  $\alpha$ -T, the alveolar septum thickened and the alveolar spaces expanded as estimated. The alveoli of this group had more or less intact type I and II pneumocytes and a better appearance of the blood-air barrier. In the cells of the alveolar lining, the VIM staining leads to a diffuse positive response. Finally, lung parenchyma also improved, suggesting that  $\alpha$ -T may help minimize the effects of AD.