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The Role of T-Lymphocytes Autophagy in Severe Atopic Asthma Pathogenesis

Abramov S., Skibo Y., Evtugyn V., Vodounon C., Abramova Z.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2016, Springer Science+Business Media New York.The apoptosis suppression in T-lymphocyte has been implicated with asthma pathogenesis. It was proposed that resistance to apoptosis in T-lymphocytes in asthmatic patients could be due to increased autophagy rate in these cells. While being a vital cellular waste disposal mechanism, autophagy was shown to be involved in asthma pathogenesis. However, the role of autophagy in severe atopic asthma (SAA) is not well understood. To further explore this, we investigated T-lymphocytes autophagy in SAA patients and healthy controls by utilizing transmission electron microscopy (TEM) and immunoblotting analyses. We found an increased number of autophagic T-lymphocytes in the patients with SAA versus healthy controls. Dexamethasone-induced apoptosis in T-lymphocytes of healthy donors revealed an activation of the autophagy in these cells, although SAA T-lymphocytes were not responsive. Presence of autophagolysosomes in SAA T-lymphocytes correlated with high expression levels of membrane protein LC3-II. These data suggest that autophagy may play an important role in the pathogenesis of SAA, facilitate T-lymphocytes activation and survival, and ultimately increase the level of airway inflammation in patients with this disease.

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Keywords

Autophagy, Severe asthma, T-lymphocytes

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