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Title: Expression of CD1a cells and VCAM in large airways and thoracic lymph nodes of fatal asthma

Mrs. Erika 23069 Cagnoni erikafeltrini@yahoo.com.br [1], Dr. Diogenes 23096 Ferreira dioferreira@yahoo.com.br MD [1], Dr. Luiz Fernando 23103 Silva burns@usp.br MD [1], Dr. Ana Laura 23104 Carvalho analauranc@yahoo.com.br [1], Mrs. Angela 23106 Santos angelitabasan@uol.com.br [1], Mrs. Maria Cristina 23107 Medeiros angelitabasan@uol.com.br [1], Dr. Marisa 23108 Dolhnikoff maridol@usp.br MD [1], Dr. Klauss 23109 Rabe tmauad@usp.br MD [2] and Dr. Thais 23110 Mauad tmauad@usp.br MD [1]. [1] Pathology, University of Sao Paulo Medical School, Sao Paulo, Brazil and [2] Pathology, Krankenhaus Großhansdorf, Grosshansdorf, Germany .

Body: Introduction: Dendritic cells (DCs) are initiators of the immune response in asthma and represent a heterogeneous class of antigen presenting cells. Little information is known about the expression of CD1a DCs in the airways and lymph nodes (LNs) of humans with asthma. VCAM (vascular cell adhesion molecule) mediates leukocyte accumulation in tissues and is induced by pro-inflammatory cytokines such as TNF-α, IL-1 and IL-4. Our objective was to study the expression of CD1a cells and VCAM in mediastinal LNs and in the airways of patients that have died of asthma. Methods: We studied 10 non-smoker fatal asthma patients (FA) and 8 non-smoker individuals that died of non-pulmonary causes (controls, CTRLs). Immunohistochemistry was performed with antibodies against CD1a and VCAM. The total area stained with CD1a and VCAM antibodies was measured on the cortical area of the LNs and on the internal, airway smooth muscle and external layers of the cartilaginous airways. Results: CD1a and VCAM stained in the airways and LNs of FA and CTRLs. No differences were found in the areas stained with CD1a and VCAM between FA and CTRLs. In fatal asthma CD1a+ stained area in the LNs correlated inversely with CD1a+ stained area in the internal ($r = -0.697$ $p = 0.025$) layer of the airways. Conclusions: A fatal asthma episode is not associated with an increased expression of CD1 cells and VCAM in cartilaginous airways or thoracic LNs. In asthma however, CD1a DC cell traffic between the airway mucosa and LNs seems to be unidirectional.