Title: Expression of heat shock proteins in chronic obstructive pulmonary disease, vernal keratoconjunctivitis and ulcerative colitis

Body: Background and Aim: Inflammatory response in different organs share many similarities, but site-specific signs. The aim of the study was to compare heat shock proteins (HSPs) levels and expression in chronic obstructive pulmonary disease (COPD) to other inflammatory states, such as vernal keratoconjunctivitis (VKC), a recurrent ocular inflammatory disease, and ulcerative colitis (UC), an inflammatory bowel disease in which autoimmune aggression may have a pathogenetic role. Methods: We examined bronchial mucosal biopsies from COPD patients, conjunctival biopsies from VKC patients, and colon mucosa biopsies from patients with UC; age-matched controls were selected for each group. We evaluated levels (by immunohistochemistry) and expression (by RT-PCR) of Hsp10, Hsp27, Hsp40, Hsp60, Hsp70, Hsp90, and the main heat shock transcription factor HSF-1 and pHSF-1. RESULTS: Hsp10 levels and expression increased in all pathological conditions, Hsp27 in VKC, Hsp40 in COPD and VKC, Hsp60 in COPD and UC, Hsp70 in UC and Hsp90 in VKC and UC, compared to controls. pHSF-1+ cells were significantly increased in COPD compared to controls, while was unaltered in VKC. All pathological tissues showed increased levels of macrophages (CD68) in lamina propria; COPD tissues were also all positive for neutrophils and VKC for eosinophils markers. Finally, Hsp60 co-localize with elastase positive cells in COPD and with CD68 positive cells in UC. CONCLUSION: These results indicate that Hsps levels and expression change during these different inflammatory states. Further studies will prove the HSPs active involvement in triggering and/or maintaining of this inflammatory status.