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**Title:** Relationship between upper airway inflammation and systemic inflammation in obstructive sleep apnoea

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**Body:** Introduction. Systemic inflammation is considered an intermediary mechanism to explain the increase risk of cardiovascular outcomes in patients with obstructive sleep apnoea (OSA). Aims. To determine the relationship between upper airway inflammation and systemic inflammation in OSA. Methods. From a sleep clinic we recruited subjects with suspected OSA. Exclusion criteria included: past or present smoking history, anatomic abnormalities at the upper airway and medical comorbidities. Severity of OSA was defined according with the number of apnoeas and hypopnoeas per hour of sleep (apnoea-hypopnoea index –AHI-). Local inflammation was evaluated by flow cytometry from pharyngeal lavage. Results. Compared to 22 healthy subjects (AHI <5), among a group of 23 patients with mild to moderate OSA (AHI: 5 to 30), and 22 patients with severe OSA (AHI > 30), total white cell and % lymphocytes was not different. However, in severe OSA, % of CD4 and CD4/CD8 ratio increased significantly compared to healthy ( $p=0.02$  and  $p<0.01$  respectively) and  $p=0.02$  and  $p<0.01$  respectively) to mild-moderate OSA ( $p=0.008$  and  $p<0.001$  respectively) groups. There was a mild relationship with CD4/CD8 ratio and high sensitivity PCR levels ( $r=0.32$ ,  $p=0.03$ ) for the whole cohort. Conclusions. This preliminary data suggests the presence of an specific type of upper airway inflammation which appears to be related with systemic inflammation. Funded by Instituto Carlos III, Madrid, Spain (FIS 09/02449).