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Title: The pattern of lymphocyte subpopulations including Fas positive cells in patients with obstructive sleep apnea (OSA)

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Body: Recurrent pauses in respiration during sleep have its consequences in deteriorations of immune system functions in patients with OSA that may lead to systemic inflammation. This study was to analyze the proportion of lymphocyte subpopulations in the blood of patients with OSA with special relation to receptor of apoptosis - Fas on these cells. The results were compared regarding to polysomnographic parameters (AHI, ODI) and BMI. The main lymphocyte subpopulations and Fas receptor on CD4 and CD8 cells were examined by flow cytometry in the blood of 42 patients with confirmed OSA. 30 of all 42 patients (mean age 58 years, 13 female) were obese (BMI>30kg/m^2; mean BMI=33.5 kg/m^2). The polysomnographic study showed that 40 patients had severe OSA (AHI per hour>30; mean AHI per hour=55, mean ODI per hour=31). The median proportion of CD3 (75.7%), CD3HLADR (7.5%), CD4 (41.9%), CD8 (34.5%), the CD4/CD8 ratio (1.3), CD19 (7.4%), NK (14.5%) cells did not differ between patients and reference data. The median Fas positive CD4 and Fas positive CD8 cells were respectively 31.7% and 20.3%, which also did not differ from reference data. The severity of OSA, determined by AHI and ODI, was negatively related to Fas positive CD4 and CD8 subsets (ns). These correlations were statistically significant among obese patients with severe OSA and those with low Hb concentration (lower than 14.7g/dl), $p<0.05$. In conclusion, the number of dyspnea and desaturation episodes during sleeping may be involved in lower rate of lymphocyte apoptosis thus promotes systemic inflammation.