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Title: PAI-uPA system in patients with obstructive sleep apnea syndrome (OSAS) in CPAP treatment

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Body: Background. Prothrombotic state in OSAS play a role for cardiovascular risk. Plasminogen activator inhibitor (PAI) is one of the primary regulators of the fibrinolytic system. We evaluated plasma levels of PAI, uPA and uPA/PAI and their correlation with Apnea-Hypopnea Index (AHI), Oxygen Desaturation Index (ODI) and percentage of time with SpO₂<90% (T<90%) before and after 1 month with CPAP. Methods. Thirty-nine patients (age 57±1.54; BMI 34.5±1.07) with OSAS (AHI 28.4±3.16; ODI 35.7±3.4; T<90% 23.1±3.3) 20 smokers (S) and 19 no smokers (NS), and 16 age matched healthy control subjects were studied. Before and after 1 month with CPAP, uPA and PAI were measured in serum by ELISA. Results. At baseline, PAI levels were higher in OSAS compared to controls (95.36±3.99 and 83.96±6.06 ng/ml, respectively). PAI levels were similar in S and NS subjects and were inversely related to AHI, BMI, ODI and T<90% in OSAS. uPA was higher in S compared to NS subjects; moreover, it was slightly higher in the controls compared to the OSAS (S 0.233±0.03, NS 0.221±0.028; S 0.206±0.01, NS 0.182±0.02 ng/ml, respectively). In OSAS uPA levels were inversely related to AHI, BMI, ODI and T<90%. uPA/PAI ratio was higher in controls compared to OSAS. PAI levels after CPAP slightly decreased, while uPA levels slightly increased. We observed an increase in uPA/PAI ratio from 1.90±0.04 and 2.56±0.55 to 2.14±0.32 and 3.1±0.79, in S and NS patients respectively. Conclusions. Our preliminary data are compatible with an impairment of fibrinolytic activity in OSAS. The increase of uPA/PAI ratio after CPAP suggests a role of the PA system in the reduction of cardiovascular risk through the decrease of the prothrombotic state.