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Title: Effects of CPAP on albumin redox state and heart rate variability in OSA patients

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Body: We aimed to assess the redox state of plasma albumin (RedoxA) and heart rate variability (HRV) as markers of cardiovascular stress in Obstructive Sleep Apnea patients (OSA) and the effects of CPAP treatment. Methods. We studied OSA treated with CPAP for 6 months, OSA before treatment, and healthy controls. HRV was calculated from the polysomnograph (ATI Delphos®), using MATLAB® and expressed as the square root of the mean of RR2 intervals (rmssd) and very low frequency (VLF). RedoxA was measured with high pressure liquid chromatography (Hewlett Packard®) using a fluorescence detector, expressed as a percentage of total albumin and referred to as HSA-SH (albumin in reduced state), HSA-S-SR (albumin reversibly oxidated), and HSA-SO₂-SO₃- (albumin irreversibly oxidated). Results. We studied 5 healthy controls, 6 OSA nontreated patients, 6 OSA treated patients. Patients showed no differences in age, sex, comorbidities, or medication. We will express the results of controls vs untreated OSA vs CPAP treated OSA. A.RedoxA. HSA-SH: 64.9 ± 1,1 vs 46.79, vs 42,54. HSA-S-SR: 32,8 ± 0,73 vs 43,3 ± 1,63 vs 48,3 ± 5,1. HSA -SO₂-SO₃-: 2,34 ± 0,7 vs 9,9 ± 2,8 vs 9,0 ± 1,9. Controls and OSA showed a significant difference. Treated vs nontreated OSA did not show statistical significance. B.HRV. Rmssd 278.3 ± 342.8 vs 42.6 ± 23.8 vs 104,7 ± 147,5 (p>0,05). VLF (%) was 37,5 ± 19.3 vs 30,8 ± 9,2 vs 48,4 ± 30,4 (p<0.05). Conclusions. OSA induces changes in albumin redox state, a fact new to our knowledge. Treatment did not improve the changes. OSA changes in HRV could be reversed by CPAP. HRV could be more sensible to detect cardiovascular stress than albumin redox state. A better study design is needed.