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Title: Impact of CPAP treatment on the changes of maxi-k+ channel beta subunit-1 expression in patients affected by sleep apnea-hypopnea syndrome (SAHS)

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Body: Regulatory function on the vasodilatation of the maxi-K+ channel beta1 subunit has been described in mouse model.CPAP treatment was shown to be related with an increase of the beta1subunit expression.Objective: To determine the relations between oxymetric and endothelial situation and subunit beta1 expression in the moment of recruitment and after 3 month of CPAP in SAHS patients.Methods: Prospective study in SAHS patients with CPAP(3 months).SAHS was defined as an apnea-hypopnea index(AHI)≥15(cardiorespiratory polygraphy).Endothelial function was evaluated with a test of postocclusive hyperemia by Laser-Doppler flowmetry.Beta1-subunit mRNA expression was made by a blood test in peripheral blood leukocytes.This two determinations were repeated 3 months after CPAP, calculating the parameter beta1b-beta1a.Results: 33 patients were enrolled with 66,7% males.Polygraphy showed a mean AHI of 61 ± 25.8,desaturation index 60 ± 25,nocturnal saturation 89.45±4.8(%),minimum nocturnal saturation 53.87± 20.34(%) and CT90 of 31.3 ± 22.7 (%).When investigating the parameter beta1b-beta1a we found a negative correlation with: nocturnal saturation(%)(R = -0.3, p = 0.02),minimum nocturnal saturation (%) (R = -0.4, p = 0.01) and area under the curve (PU / s),(R = -0, 46, p = 0.01)and a positive correlation with CT90 (R = 0.3, p = 0.04) and the slope (PU)(R = 0.4, p = 0.001).Conclusions: In our study population individuals showing worst oxymetric parametres or basal vascular endothelial situation initially achieved after 3 month of CPAP the most important improvement of beta1 subunit levels (expressed as higher values in the difference beta1b-beta1a).