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**Title:** Risk factors of hypercapnia in patient with obstructive sleep apnea

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**Body:** The severe obesity sometimes leads to a chronic alveolar hypoventilation: obesity hypoventilation syndrome (OHS). The association with OSAS is frequent. AIM: The aim of the present study is to specify favorisants factors that lead to hypoventilation in a population of obese persons with SAS and to deduct the type of association between OHS and SAS. Methods: 62 patients were enrolled. We excluded patient with bronchial obstruction and we have compared anthropometric, functional, gazometric and polysomnographic details of the groupe1 (G1): OHS=9 and of the groupe2 (G2): obesity without hypoventilation=53. Results: We haven't identify a difference between the two groups concerning age, sex, frequency of smokers, nasopharynx region abnormalities, AHI,SAS severity and the respiratory functional exploration.We noted that there is a positive interrelationship between BMI and Paco2. We identify severe gazometric perturbation in G1 (Pao2=61±9 mmHg, Paco2=50±7 mmHg) versus G2 we noted a moderate hypoxemia. Patients of the group1 make minimal desaturation of 63±17% and a Sao2 average of 81±20% what is meaningfully important than in the G2.

	Group1 (n=9)	Group2 (n=53)	p
Age (year)	47,56±12,55	51,4±12,27	0,45
sex	Femal 44,4% Male55,6%	Femal32,1% Male 67,9%	0,42
Tabacco (PA)	9,67±12,91	11,72±17,41	0,93
BMI (Kg/m2)	45,48±8,53	37,01±5,75	0,005
BMI >40	77,8%	24,5%	0,004
snoring	88,9%	96,2%	0,38
Epworth Score	14,38±4,56	12,6±6,08	0,46
nasopharynx region abnormalities	44,4%	50,9%	1

Conclusion: The alveolar hypoventilation in SAS seems to be in correlation with the degree of obesity. The hypercapnie in the OHS is in relation neither with the SAOS nor with its severity. The OHS-SAS association is usual but not synonym; the OHS is an autonomous disease.