

# THE ADIPOSE TISSUE AND THE RISK FOR OBESITY HYPOVENTILATION SYNDROME DEVELOPMENT IN DIABETIC PATIENTS WITH CHRONIC KIDNEY DISEASE

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**INTRODUCTION AND AIM:** *“The purpose of this study was to investigate whether there is a relation between the adipose tissue mass and the carbon dioxide partial pressure (PCO<sub>2</sub>) in diabetic patients with CKD using bioimpedance spectroscopy technique”*

Obesity hypoventilation syndrome (OHS) is a diagnosis of exclusion. In its simplest form, it is defined as daytime hypercapnea with elevated awake PCO<sub>2</sub> >45mmHg, BMI >35 kg/m<sup>2</sup> with the exclusion of pulmonary, neurologic and neuromuscular disorders. In up to 90% of the cases, obstructive sleep apnea-hypopnea syndrome (OSAHS) is also present. Obesity and Diabetes Mellitus (DM) are independent risk factors for the development of obstructive sleep apnea-hypopnea syndrome. Patients with DM have OSAHS up to 23% and likewise 40% of the patients with OSAHS tend to have diabetes.

**PATIENTS - METHOD :** *“In this single center cohort study we try to investigate the possible correlation between BCM measurements with arterial blood gas values”*

### Patients biochemical parameters

N= 53 (29M+24F)	Mean values±SD
Age	70±9 years
Body weight	84.4±18.5 Kg
Creatinine - serum	1.5±0.6 mg/dl
eGFR (ml/min/1.73m <sup>2</sup> )	49.7±21.7
Albumine - serum	4.2±0.5 g/dl
CRP	0.5±0.12 mg/dl
Protein/Creatinine - urine	0.88±0.22
SAP	153±19.26 mmHg
DAP	79.3±12.6 mmHg
BMI	31.91±5.83 kg/m <sup>2</sup>

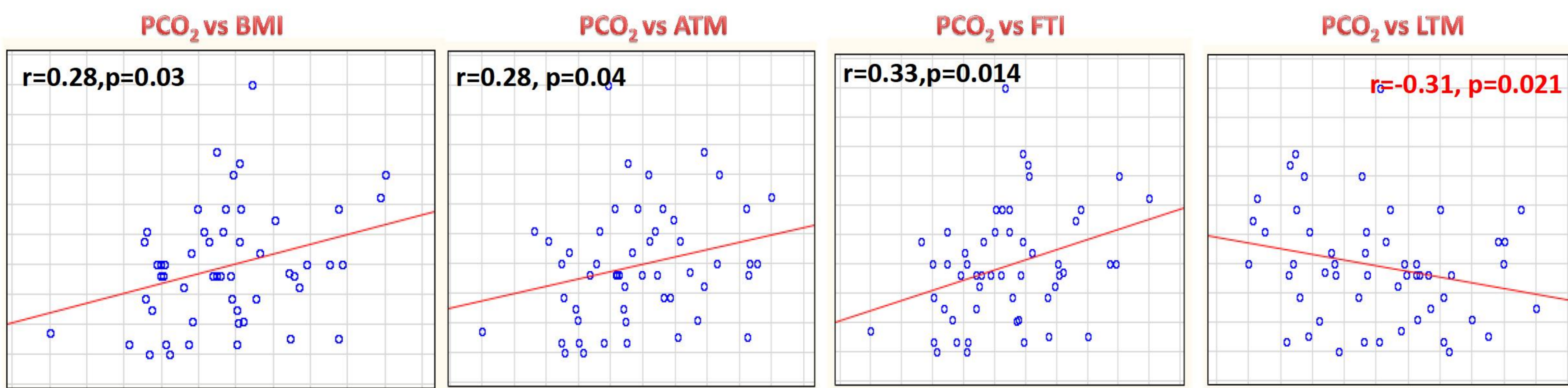
### Arterial blood gas values

N= 53 (29M+24F)	Mean values±SD
pH	7.4±0.04
PaCO <sub>2</sub>	39.84±4.93 mmHg
PaO <sub>2</sub>	95.7±2.9 mmHg
HCO <sub>3</sub>	24.99±3.92 mmol/l

### BCM measurements (mean± SD)

FTI (Kg/m <sup>2</sup> )	21,00377	6,63194
ATM (Kg)	54,12453	16,57490
LTM (Kg)	27,34151	5,89796
TBW (Lt)	32,23774	5,17461
OH (Lt)	0,48113	1,62978

**RESULTS:** *In this study there was statistically significant correlation (Spearman's non parametric correlation) between .....*



There were **no correlations** between the PaCO<sub>2</sub> levels and the Total Body Water as well as the overall hyperhydration



## CONCLUSIONS:

The Obesity Hypoventilation Syndrome is characterized by obesity and hypercapnea and frequently leads to Sleep-Apnea syndrome with increased morbidity and mortality. Even though the BMI of our patients was below 35 kg/m<sup>2</sup>, there was a correlation with fat tissue markers and PaCO<sub>2</sub>. **Bioimpedance spectroscopy is a useful technique for the early identification of patients at risk for the development of OHS so that we can target our therapy to weight reduction**

