

THE UTILITY OF BIOIMPEDANCE SPECTROSCOPY IN DIABETIC PATIENTS WITH CHRONIC KIDNEY DISEASE

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INTRODUCTION AND AIM: *“ The aim of this study was to evaluate the hydration status of diabetic patients with CKD using the BCM”*

Cardiovascular events remain the primary form of mortality and morbidity in diabetic patients with Chronic Kidney Disease (CKD). The abnormal hydration state has been related to arterial hypertension and other symptoms and signs including pulmonary and peripheral edema, heart failure, left ventricular hypertrophy and other adverse cardiovascular sequelae. To determine the hydration status, clinical surrogate parameters are used such as weight gain and blood pressure. However, clinical findings are not always conclusive and sometimes are contradictory. Bioimpedance spectroscopy (BCM-Body Composition Monitor) based on the principle of a vector sum of reactance and resistance seems to be a valid method for assessing and monitoring hydration and nutritional status

PATIENTS - METHOD : *“ The patients’ hydration status and body composition(OH-overhydration, ECW-extracellular water, ICW-intracellular water) were estimated by using bioimpedance spectroscopy technique and we investigate the possible correlation between BCM measurements with clinical and biochemical parameters ”*

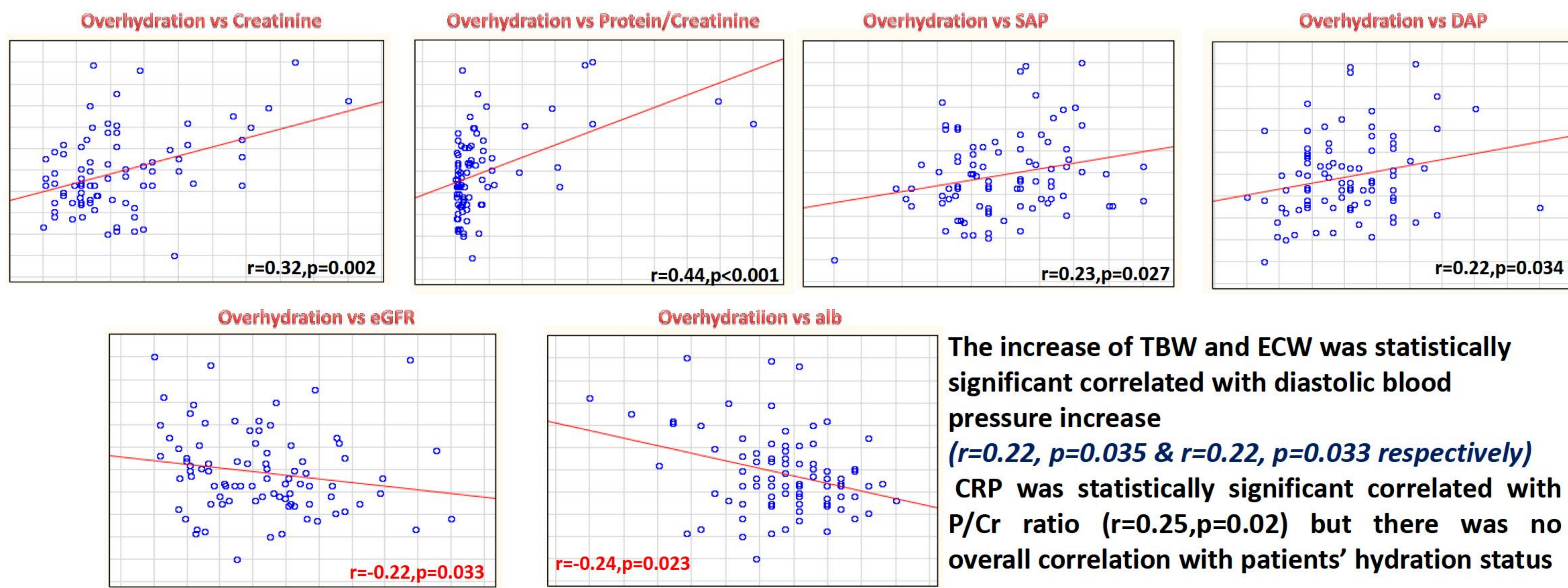
Patients biochemical parameters

N= 87 (46M+41F)	Mean values±SD
Age	70.08±9.01 years
Body weight	86.77±21.01 Kg
Creatinine - serum	1.68±0.6 mg/dl
eGFR	50.76±22.3 ml/min/1.73m2
Albumine - serum	4.28±0.40 g/dl
CRP	0.53±0.08 mg/dl
Protein/Creatinine - urine	0.92±0.19
SAP	154.5±18.5 mmHg
DAP	79.1±11.7 mmHg
BMI	32.06±5.56 kg/m ²

BCM measurements

N=87	Mean	Std.Dev.
OH (lt)	0,54138	1,62420
TBW (lt)	33,34483	5,98639
ECW (lt)	16,77931	3,18350
ICW (lt)	16,57126	3,10824
LTI (Kg/m ²)	10,92644	2,16507
FTI (Kg/m ²)	20,66897	6,45203
LTM (Kg)	28,95057	7,46629
LTM %	35,31172	9,47318
FAT (Kg)	39,52759	11,58438
FAT %	46,52448	7,89193

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



CONCLUSIONS:

Overhydration was statistically significant correlated with the deterioration of renal function (eGFR, proteinuria) with an increase of Blood Pressure and with the decrease of albumin values (nutrition marker). **Diabetic patients with CKD are more exposed to expansion of extracellular volume and overhydration (predictors of mortality and morbidity). Bioimpedance spectroscopy technique is a potentially useful method for identifying and treating patients with subclinical or clinical overhydration.**

