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Title: Cystatin C and albuminuria as markers of kidney and cardiovascular diseases in obstructive sleep apnoea syndrome (OSAS)

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Body: Obstructive sleep apnea (OSA) increases the risk of cardiovascular diseases and has been reported to be associated with a chronic kidney disease (CKD). The aim of our study was to assess the relations between indices of renal function (cystatin C, microalbuminuria, creatinine) and OSA severity and obesity. We studied 238 OSA pts who had AHI ≥5/h in polysomnography: mean age 56.9±9.9y, AHI 38.9±21.7/h, ODI 44.85±27.85/h, BMI 33.5±5.8 kg/m2. Serum cystatin C levels were measured in all patients, normal values were: under 50y old; CysC<0.92mg/L, over 50y old; CysC<1.02mg/L. CKD was diagnosed when plasma creatinine level was above 1.2 mg/dl.

Variable	Normal CysC N=141 (59%)	Elevated CysC N=97 (41%)	p
Age (years)	56 ± 9.4	58.2 ± 10.6	NS
BMI (kg/m2)	32.6 ± 5.4	34.4 ± 6.4	0.04
AHI (n/h)	38.8 ± 21.5	39.2 ± 22.1	NS
ODI (n/h)	44.1 ± 26.8	45.9 ± 29.4	NS
Microalbuminuria (n/%)	19(22.35%)	9 (16.36)	NS
CKD (n/%)	3(2.17%)	13(13.4)	<0.001

Logistic regression analysis (LRA) revealed that increased CysC level was associated with elevated creatinine (OR=7.6; 95%CL=1.5-39.5, p<0.001) and obesity (OR 2.6; 95%CL 1.4-5.9, p=0.04) but not with AHI (OR=1,09, 95%CL=0.3-3.6, p=0.89). CKD was associated with severe OSA, AHI>30/h (OR=7.97, 95%CL=1.5-41.6, p=0.013) and obesity (OR=3.1, 95%CL=1.2-8.1, p=0.016). Conclusions: CysC should be

considered as a biomarker that reflects clinically latent renal dysfunction. The chronic kidney disease was more frequent in obese subjects with severe OSA.