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Title: Relations between cystatin C plasma concentration and cardiovascular complications in patients with obstructive sleep apnoea (OSA)

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Body: Cystatin C (Cys C) is a protease inhibitor synthesized in all nucleated cells. Lately it has been proposed as an indicator of early dysfunction in glomerular filtration rate. NT-proBNP is a hormone secreted by ventricles in response to heart overload. The aim of this study was to assess Cys C plasma level in patients with OSA and its relationships with OSA-associated cardiovascular diseases. Cys C and NT-proBNP were also compared as predictors of cardiac abnormalities. We studied 238 consecutive patients with OSA: mean age=56.87±9.97yrs, BMI=33.5±5.84kg/m², mean AHI=38.97±21.71, mean ODI=44.85±27.85. Elevated level of cystatin C (under 50yrs: CysC<0.92mg/L, over 50yrs: CysC<1.02mg/L) was found in 97 pts (40.7%). Comparison of pts with normal and elevated level of Cys C is shown in a table below.

variable	elevated Cys C	normal Cys C	p
Arterial Hypertension (n/%)	77(79%)	104(74%)	NS
Coronary Artery Disease (n/%)	34(35%)	22(15.6%)	P=0.0005
Heart Failure (n/%)	17(17.5%)	4(2.8%)	p=0.00009
Microalbuminuria (n/%)	9(16.36%)	19(22.35%)	NS
Elevated NT-proBNP(n/%)	28(35.9%)	21(18.3%)	NS
AHI>30/h (n/%)	61(62.9%)	79(56.4%)	0.01

Logistic regression analysis (LRA) revealed that CAD (OR=2.56; 95%CI=1.31-4.98, p=0.005) and HF (OR=6.2; 95%CI=1.9-19.9, p=0.001) were associated with increased CysC level. Association of increased

NT-proBNP level with cardiac disorders in OSA pts was also confirmed (for CAD OR=2.5, 95%CI=1.1-5.3, p=0.01, for HF OR=4.9, 95%CI=1.6-14.9, p=0.004). Conclusions: Increased Cys C level is strongly associated with cardiac diseases in pts with OSA. Cys C seems to be a better indicator of HF than NT-proBNP in OSA pts.