

Assessing cardiovascular remodeling through ABPM, TNF-alpha, IL-6 and proteinuria in chronic kidney disease patients

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BACKGROUND:

Ambulatory blood pressure monitoring (ABPM) is considered to be an important tool in evaluating cardiovascular prognosis. What is more, the study of pro-inflammatory markers may be beneficial in assessing cardiovascular outcomes through the remodeling of the cardiovascular tree. Our study tries to assess the role of ABPM and the importance of proteinuria and inflammatory markers, TNF-alpha and IL-6, in the process of cardiac and vascular remodeling in chronic kidney disease (CKD) patients.

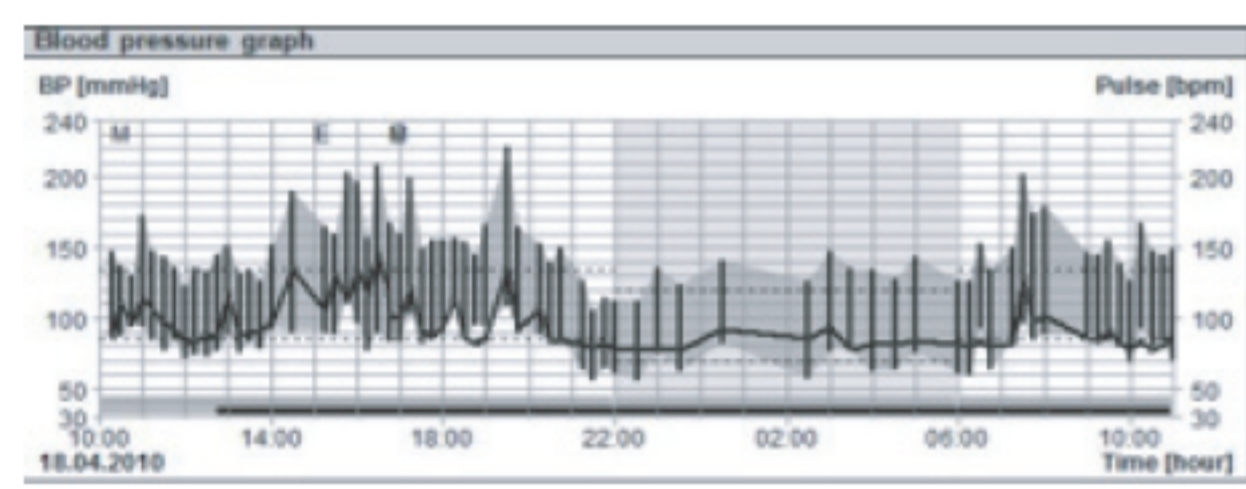
METHODS:

35 CKD patients (mean age 67.4 y/o, 51% males) were enrolled in the study and underwent:

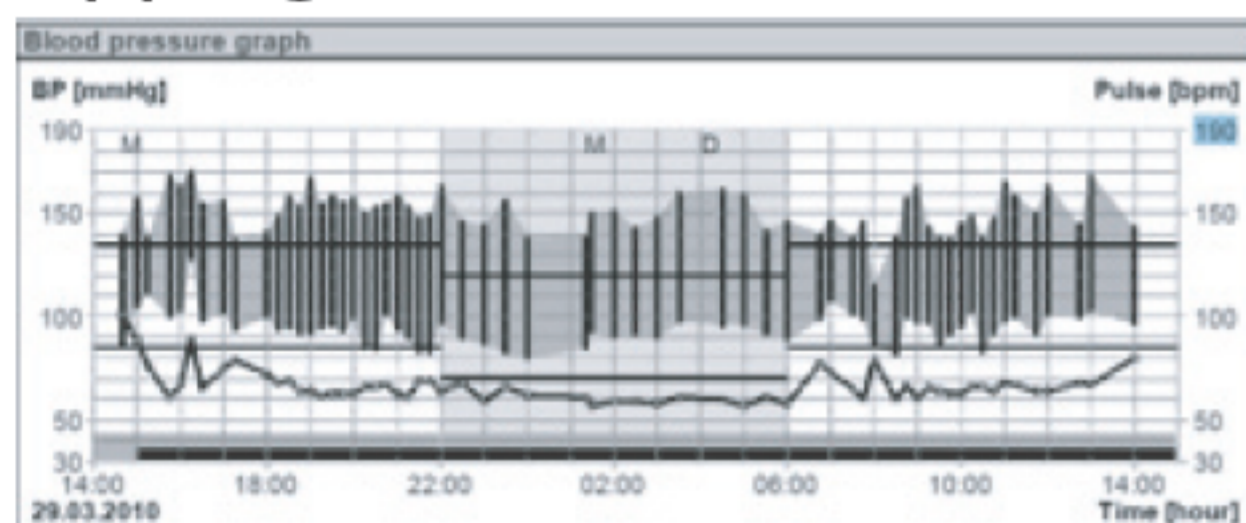
Laboratory tests:

- TNF-alpha
- IL-6
- Proteinuria

24-hour ABPM using BTL-08 ABPM monitor:
Dipping defined as 10-20% fall of nocturnal BP



Non-dipping defined as <10% fall of nocturnal BP



Cardiac ultrasonography:

- Posterior wall thickness (PWT)
- Ejection fraction (EF)

Carotid ultrasonography:

- Intima-media thickness index (IMT), was considered positive if value > 0.9 mm or atherosclerotic plaque found

Arterial stiffness measurements

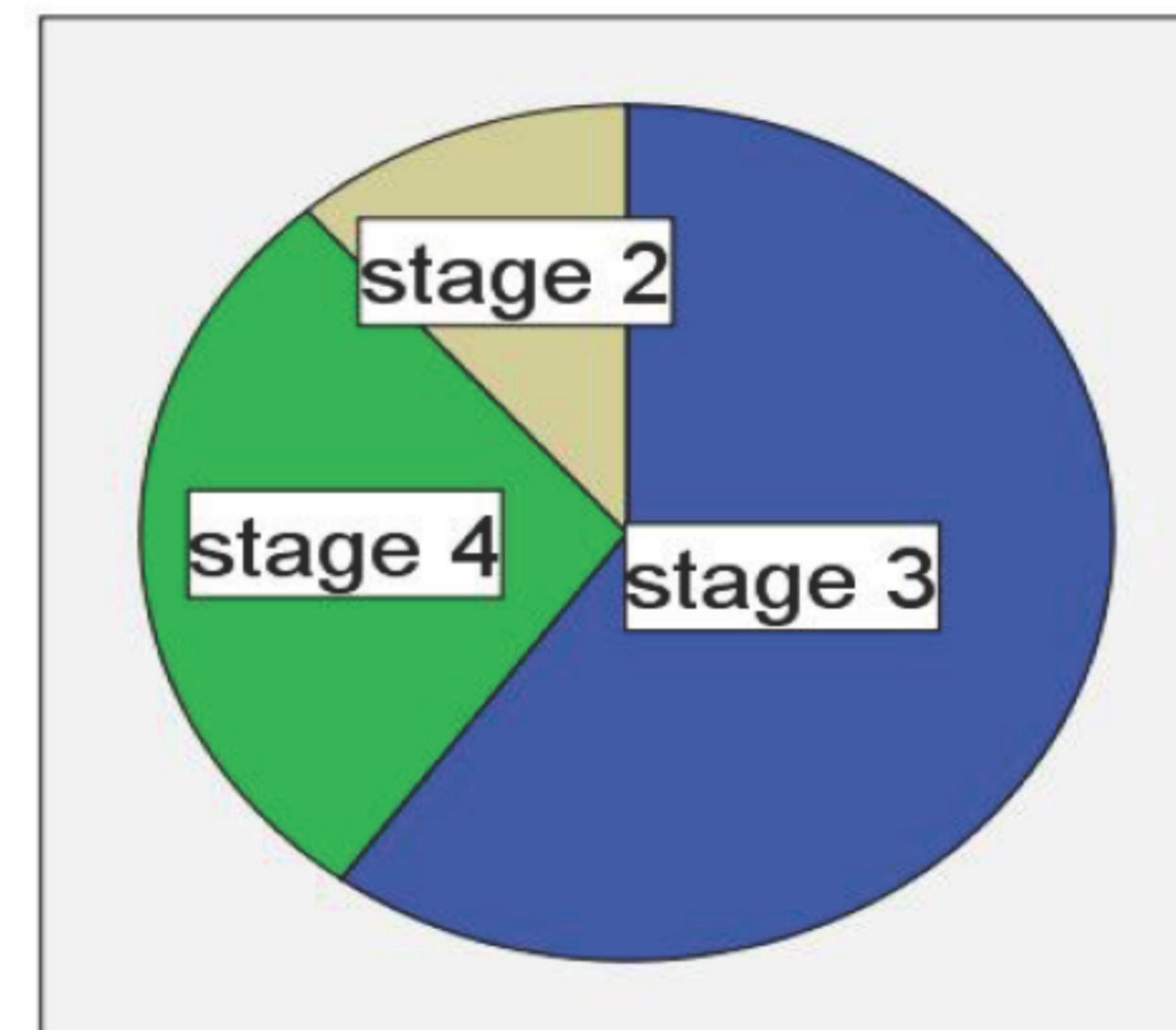
using SphygmoCor (AtCor Medical, Sydney, Australia):

- Aortic systolic pressure (AoSP)
- Aortic pulse pressure (AoPP)
- Pulse wave velocity (PWV)

Statistics were made using IBM SPSS Statistics V.19.

RESULTS:

Characteristics of the studied lot:



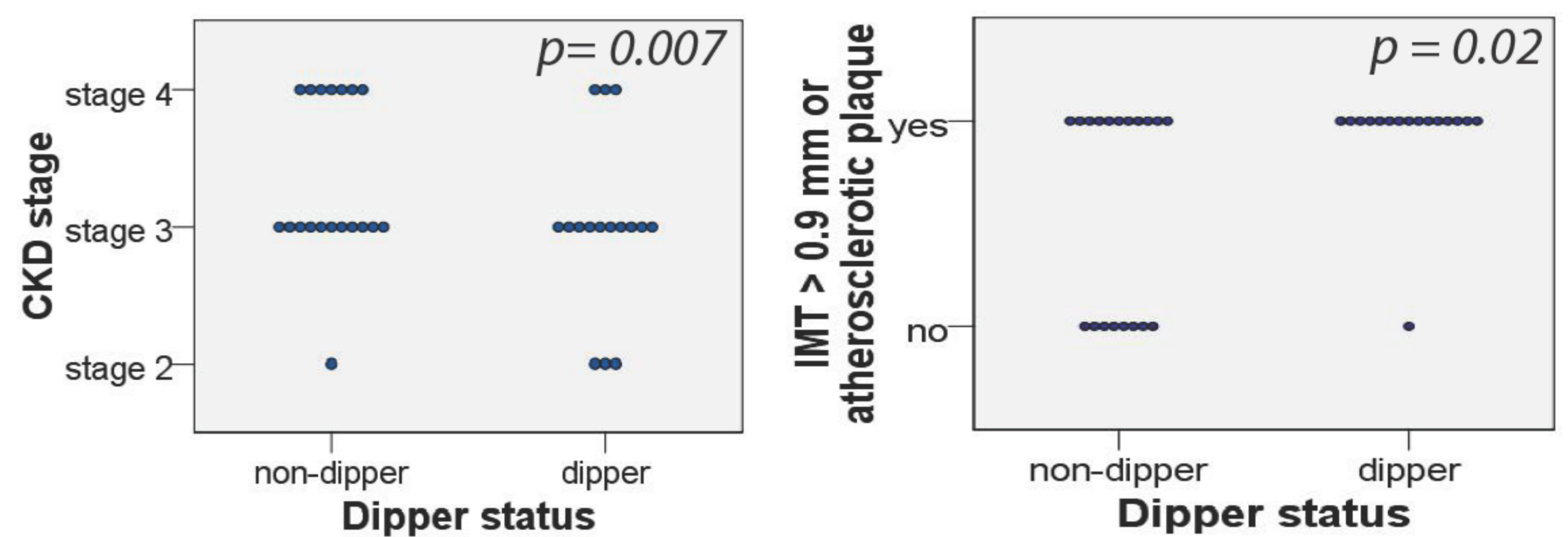
CKD stage:

- 4 pts (11.4%) with stage 2 CKD
- 21 pts (60%) with stage 3 CKD
- 10 pts (28.5%) with stage 4 CKD

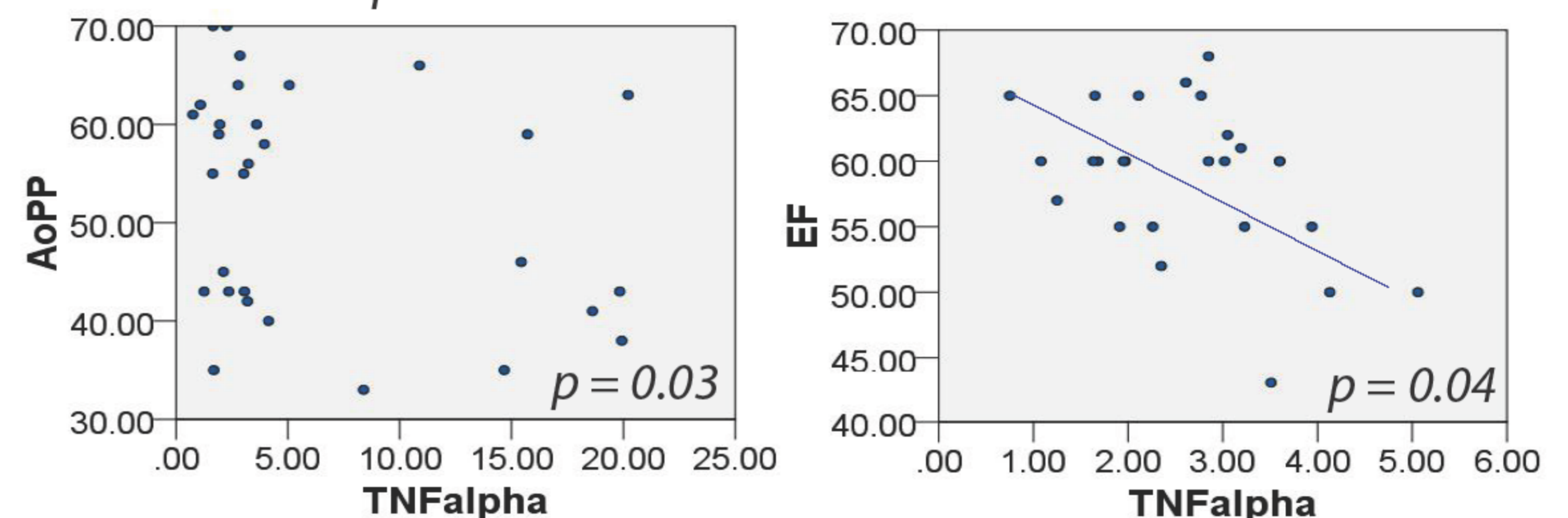
19 pts (54.2%) had a non-dipper status.

26 pts (74.3%) with IMT > 0.9 mm or atherosclerotic plaque.

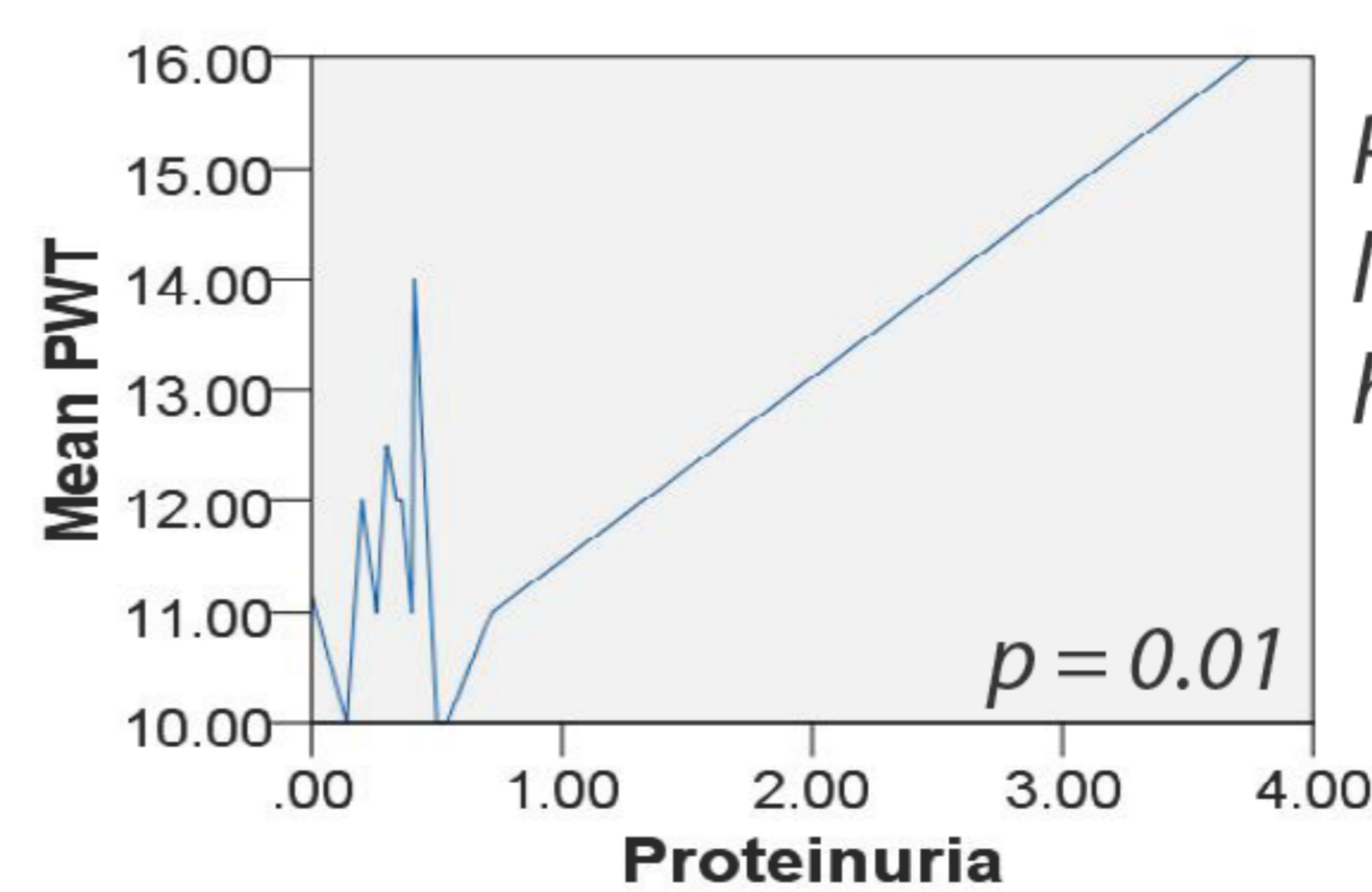
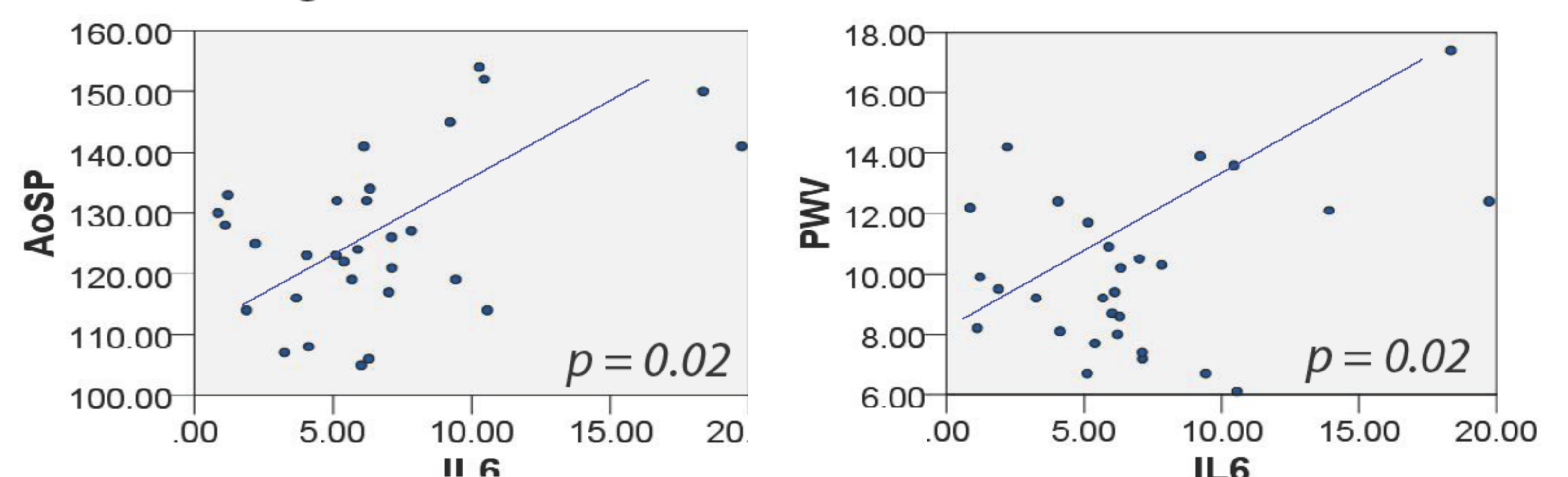
Dipper status was correlated with atherosclerosis in CKD patients.



TNFalpha blood values were related to cardiac function.



Higher values of IL-6 correlated with vascular stiffness.



Patients with proteinuria were more likely to have cardiac muscle hypertrophy.

CONCLUSIONS:

ABPM, TNF-alpha, IL-6 and proteinuria are strong predictors of cardiovascular remodeling in CKD patients.

ABPM is an easily available and reliable method for evaluating and monitoring cardiovascular damage.

TNF-alpha is strongly correlated to cardiac function.

IL-6 is strongly correlated with vascular remodeling.

Proteinuria correlated with cardiac muscle modifications.

Cardiovascular function and anatomic modifications can be easily assessed through little or non-invasive methods in CKD patients.

