

ARTERIAL STIFFNESS EVALUATED BY PHOTOPLETHYSMOGRAPHY AS A PREDICTOR OF CARDIOVASCULAR DEATH IN NON-DIABETIC HEMODIALYSIS PATIENTS

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OBJECTIVES

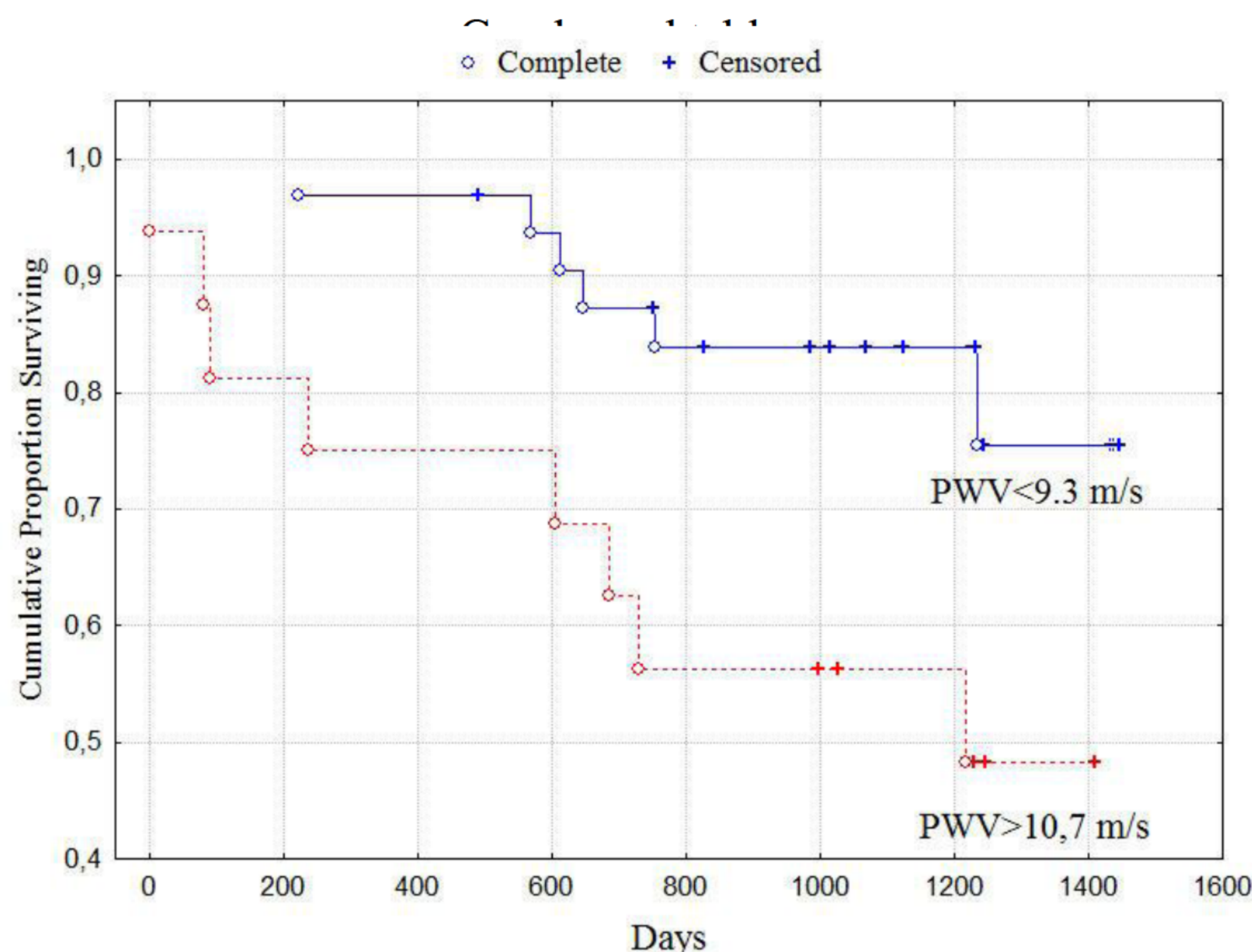
Arterial stiffness determined by carotid-femoral pulse wave velocity (PWV) and applanation tonometry is a factor of cardiovascular risk in hemodialysis patients. Photoplethysmography is an alternative, simple and easy-to-use method for measuring arterial stiffness, but its prognostic value in hemodialysis patients has not been studied.

METHODS

The open prospective study covered 83 non-diabetic hemodialysis patients (43 males, 40 females, age 56 (43;61) years, hemodialysis vintage 37 (14;66) months). The pulse wave velocity (PWV) was used to assess arterial stiffness. It is calculated according to the contour analysis of peripheral pulse wave with the help of photoplethysmographic instrument Pulse Trace PCA 2000 (MicroMedical Ltd., United Kingdom).

RESULTS

During the 4-year follow-up period, 28 patients died (18 from cardiovascular events). The patients who died from cardiovascular events did not differ from the rest of age (54,5 (44; 60) vs 55 (43; 61) years, $p = 0,981$) and hemodialysis vintage (40,5 (20,0; 82,5) vs 34 (9; 56) months, $p = 0,097$), but had higher values PWV (10.7 (9.3; 12.1) vs 9,2 (8,0; 10,2) m/s, $p = 0,009$). Patients with the value of PWV above the highest quartile (>10.7 m/s) were associated with lower survival rate when compared to patients with the value of PWV less than median level (<9.3 m/s) (Log-rank test: $p=0,028$).



CONCLUSIONS

Increased PWV measured by means of contour analysis of photoplethysmographic pulse wave is an predictor of cardiovascular death in non-diabetic hemodialysis patients.

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