

Neural Involvement in Maintenance Haemodialysis Patients Reduces 1-Year Arteriovenous Fistula Outcome

Alper Kirkpantur¹, Sibel Mandiroglu², Aysel Turkvatan³, Mustafa Mucahit Balci⁴, Barış Afşar⁵, Fahri Mandiroglu³

- 1 RFM Renal Treatment Services, Nephrology, Ankara, Turkey
- 2 Physical Therapy and Rehabilitation Hospital, Department of Physical Therapy and Rehabilitation, Ankara, Turkey
- 3 Yuksek Ihtisas Hospital, Department of Radiology, Ankara, Turkey
- 4 Yuksek Ihtisas Hospital, Department of Cardiology, Ankara, Turkey
- 5 Konya Numune Hospital, Department of Nephrology, Konya, Turkey

OBJECTIVES

Uremic neuropathy (UN) is an underestimated disease among the dialysis population even though it represents a huge problem in terms of pain and quality of life. Carpal tunnel syndrome (CTS) independent of uremic polyneuropathy has also been described in these patients. Arteriovenous fistula (AVF) has been identified as one of the possible causes for the development of carpal tunnel syndrome. However, the association of neuropathy with AVF survival has not been studied.

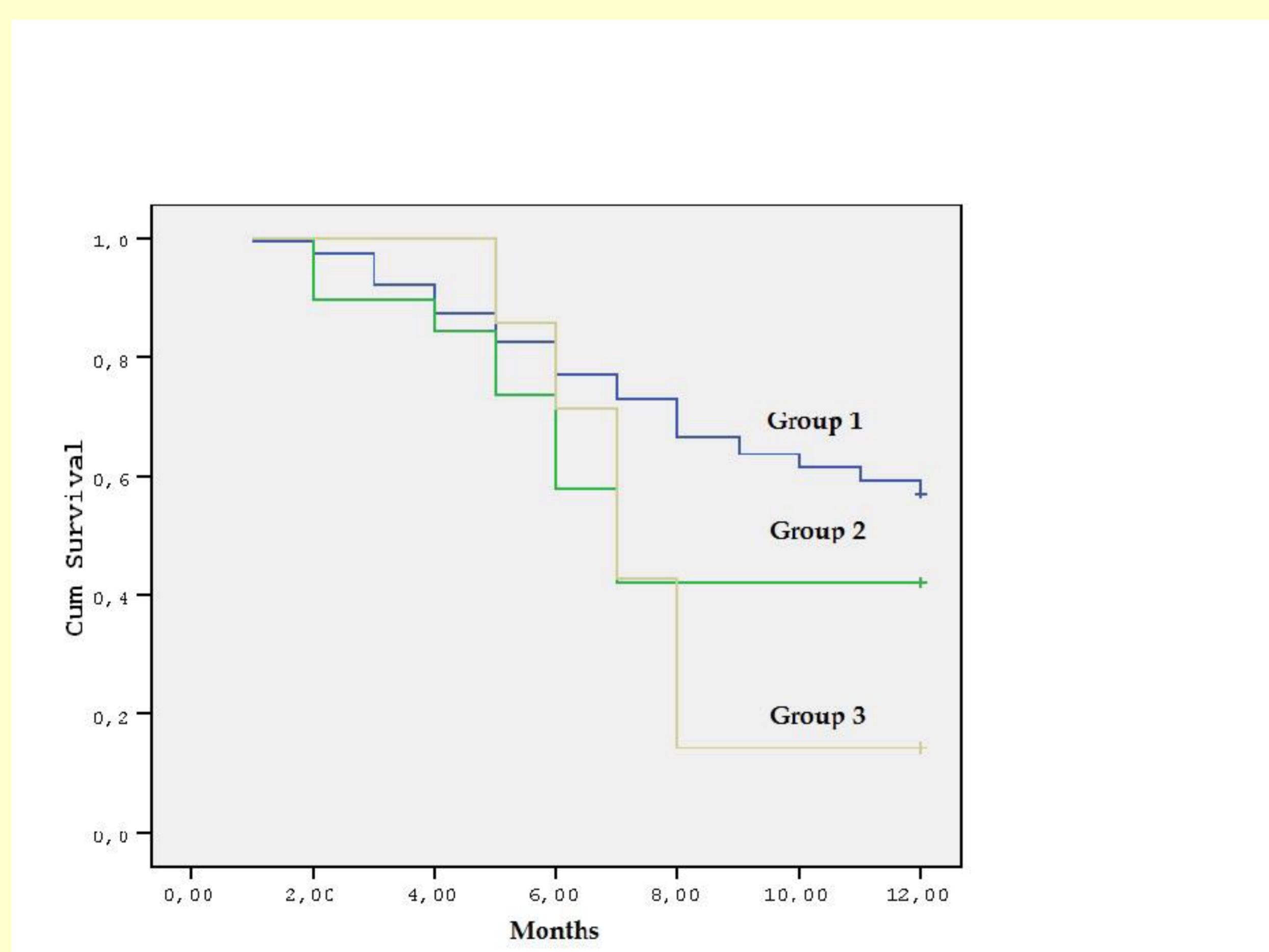
METHODS

250 prevalent dialysis patients from a large hemodialysis facility were included. The Michigan Neuropathy Score Instrument (MNSI) was used for the diagnosis of UN. Electroneurographic (ENG) examination was performed in these patients to confirm UN and to diagnose CTS. AVF surveillance was conducted by means of clinical and ultrasonographic evaluation. AVF dysfunction is diagnosed on angiographic basis. Serum sclerostin levels were measured by an ELISA kit (R&D Systems, Minneapolis, MN).

RESULTS

26 patients (10.4%) were identified as being affected by UN (Group 2), while 13 (5.2%) diagnosed as CTS superimposed to UN (Group 3). Remaining 211 patients were considered free of neuropathic signs and symptoms (Group 1). No isolated cases with CTS were diagnosed. Patients with neuropathic involvement (Group 2 plus Group 3 patients) had higher sclerostin levels than patients free of neuropathic signs and symptoms (1951 ± 1262 vs 1466 ± 1384 pg/ml, $p=0.03$). During 1 year follow-up, AVF dysfunction occurred in 90 cases in Group 1 (43%), 15 cases in Group 2 (58%) and finally 11 cases in Group 3 (85%) respectively (p for the trend=0.029, Figure 1). Cox regression analysis revealed that presence of neuropathy (HR:1.7, 95%CI: 1.12-2.88, $P=0.04$) as an independent factor for AVF dysfunction.

Figure 1



CONCLUSIONS

The present work links neuropathy to vasculopathy in patients on haemodialysis that should be further studied.

REFERENCES:

- 1-Mambelli E, Barrella M, Facchini MG, Mancini E, Sicuso C, Bainotti S, Formica M, Santoro A. Clin Nephrol. 2012 Jun;77(6):468-75.
- 2-Halter SK, DeLisa JA, Stolov WC, Scardapane D, Sherrard DJ. Arch Phys Med Rehabil. 1981 May;62(5):197-201.

