

Letter to the editor

Pre-existing arterial microcalcification and arteriovenous fistula failure

Nenad Petković¹, Radoslav Gajanin², Ljubica Djukanović³

¹Fresenius Medical Care Dialysis Center Šamac, The Republic of Srpska, Bosnia and Herzegovina

²Department of Pathology, Clinical Center, Banja Luka, The Republic of Srpska, Bosnia and Herzegovina

³School of Medicine, University of Belgrade, Belgrade, Serbia

To the Editor:

Arterial microcalcification is common in patients with chronic kidney disease (CKD) and presents a significant predictor of both general and cardiovascular mortality [1]. In addition, arterial microcalcification could limit vascular dilatation contributing to impaired arteriovenous fistula (AVF) maturation and patency, although its influence on AVF outcome is not fully determined. The present study evaluated whether pre-existing arterial microcalcification was associated with unassisted AVF failure.

The study involved 22 patients (14 males, aged 60.5 ± 12.1) with chronic kidney disease (eGFR 11.9 ± 2.3 ml/min/1.73m²) undergoing their first AVF surgery. Radial artery specimens obtained from all patients dur-

ing AVF creation were fixed and stained with hematoxylin and eosin for semiquantitative calcium quantification. Hemodialysis treatment and AVF puncture occurred within 4–6 weeks after AVF surgery.

Arterial microcalcification was found in ten (40.9%) patients and they had significantly higher serum levels of cholesterol (4.3 ± 1.0 vs. 2.6 ± 0.9 ; $p=0.01$), triglycerides (1.6 ± 0.5 vs. 2.6 ± 0.9 ; $p=0.001$) and iPTH (208 ± 136 vs. 133 ± 70 ; $p=0.05$) in comparison with the remaining ones. During 30 months after AVF surgery nine patients died, seven with a functioning AVF. Among these nine patients arterial microcalcification was found in five ($p = 0.16$). During the follow-up period unassisted AVF failure occurred in four (18.2%) patients, one of whom had arterial microcalcification ($p=0.47$).

Data on the impact of arterial

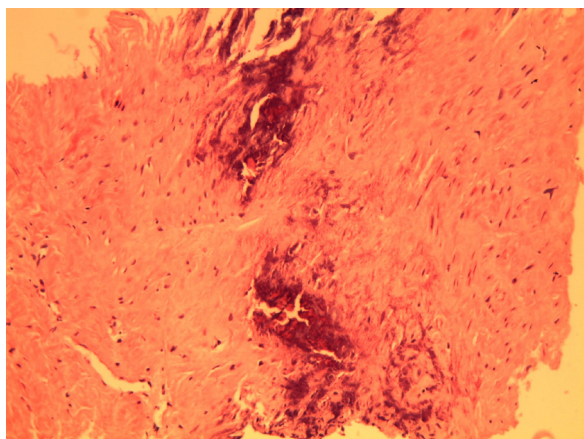


Figure 1. Cross section of artery with high level calcification (score 3), HE x 200

microcalcification on AVF survival are scarce and contradictory. While Choi et al. [2] found an association between pre-existing arterial microcalcification of the vascular access and AVF failure, Allon et al. [3] reported that neither AVF nor arteriovenous graft survival was associated significantly with vascular microcalcification. Our results, although obtained by examination of a small group of patients, are in agreement with the latter, indicating no association between arterial microcalcification and AVF failure.

The authors declare no conflict of interest.
Autori izjavljuju da nemaju sukob interesa.

References

1. Schlieper G, Schurgers L, Brandenburg V, Reutlingsperger C, Floege J. Vascular calcification in chronic kidney disease: an update. *Nephrol Dial Transplant* 2016;31(1):31-9.
2. Choi SJ, Yoon HE, Kim YS, Yoon SA, Yang CW, Kim YS, et al. Pre-existing arterial micro-calcification predicts primary unassisted arteriovenous fistula failure in incident hemodialysis patients. *Semin Dial* 2015;28(6):665-9.
3. Allon M, Robbin ML, Umphrey HR, Young CJ, Deierhoi MH, Goodman J, et al. Preoperative arterial microcalcification and clinical outcomes of arteriovenous fistulas for hemodialysis. *Am J Kidney Dis* 2015;66(1):84-90.

Correspondence to:
Nenad Petković, MD, PhD
Fresenius Medical Care Dialysis Center Šamac
Cara Dušana 70, 76230 Šamac
nenad.petkovic@fresenius-ag.com

