

## DIALYSIS. VASCULAR ACCESS

### SP516 ARTERIOVENOUS FISTULA SURVEILLANCE IN HEMODIALYZED PATIENTS: HOW, WHERE AND WHEN?

Massimo Torreggiani, Micaela Gentile, Marco Colucci, Maria Adelaide Garlando, Vittoria Esposito, Davide Catucci, Giovanni Montagna, Luca Semeraro and  
Ciro Esposito  
*IRCCS Salvatore Maugeri, Unit of Nephrology and Dialysis, University of Pavia,  
Pavia, ITALY*

**Introduction and Aims:** The arteriovenous fistula (AVF) is the optimal vascular access for hemodialysis patients and is defined as their “lifeline”. Actual guidelines do not suggest a specific test or procedure to monitor vascular access patency, so every dialysis center relies on the experience and the competencies of the local nephrologists as well as the availability of other specialists at the site. Aim of our study was to evaluate different surveillance techniques and determine whether these could be applicable to all the patients and introduced in the clinical practice without the need of additional costs.

**Methods:** We considered eligible every patient dialyzing in our center with an AVF of native vessels. 107 patients were enrolled and followed from December 2014 to July 2015. Dialysis blood flow (Qb) and arterial (Pa) and venous (Pv) pressures were recorded at each dialytic session. A subgroup of 48 patients was randomly selected to undergo monthly Qb stress test (QBST) and 20 of these were further randomly

selected to undergo a Doppler scan to calculate the brachial artery blood flow every three months. After a positive QBST, the patient performed a Doppler scan to evaluate the presence of stenosis. Second level examinations (i.e. fistulography) were performed in case of evidence of stenosis or reduced brachial artery blood flow at the Doppler scan.

**Results:** The average lifespan of the AVF in our cohort was 73.4 months. Normalizing Pa and Pv for Qb, we observed a Gaussian distribution of the values and divided our population in quartiles. We observed a greater occurrence of QBST positivity at a QB of 400 ml/min in patients with a higher Pa/Qb while the ratio Pv/Qb was less predictive of vascular access dysfunction. During the follow-up we did not observe any failures of the access but two patients underwent a fistulography. One patient was diagnosed a 3 cm stenosis of the venous side of the AVF because of persistent positivity of the QBST. Of note, there was an increase of 24% in the Pa/Qb ratio from the beginning of the observation, an increase higher than the single rise in Pa (3%) or the fall in Qb (17%). The second patient was diagnosed with an axillo-subclavian vein stenosis because of the appearance of upper limb edema and collateral circles in spite of persistently negative QBST or Doppler scan of the brachial artery.

**Conclusions:** Our study shows that a single method of surveillance of the vascular access is not sufficient and that the physical examination remains pivotal in the everyday evaluation of the access. To optimize resources, we suggest to perform the Doppler scan of the fistula only when the clinical suspect of a stenosis is strong. In this regard, we suggest to prefer the Pa/Qb ratio and its variations over time (every three months), rather than the Pa or the Qb alone. Nurses should be trained to calculate the Pa/Qb. This training is not expensive and does not require particular skills.