

## SELECTED ARTICLES

We hereby present comments on a selection of articles recently published in internationally acclaimed medical journals. We believe these papers deserve special attention due to the quality and importance of the conclusions reached by the studies. Our objective is to keep an open look on new aspects of scientific research or review articles that may, in turn, update aspects of our own medical specialty.

Also, the Editorial Committee will consider suggestions on recent articles that the readers think deserve to be commented in this section ([revista@caccv.org.ar](mailto:revista@caccv.org.ar)).

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### IMPORTANCE OF A PREOPERATIVE EXERCISE PROGRAM IN ARTERIOVENOUS FISTULAS FOR DIALYSIS ACCESS

#### ARAGONCILLO SAUCO I ET.AL. EFFECT OF PREOPERATIVE EXERCISE ON VASCULAR CALIBER AND MATURATION OF ARTERIOVENOUS FISTULA: THE PHYSICALFAV TRIAL, A RANDOMIZED CONTROLLED STUDY

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It is known that autologous radiocephalic arteriovenous fistula (AVF) is the best vascular option for dialysis access; however, the rate of primary failure ranges from 20% to 50%. Although it is estimated that preoperative isometric exercises are beneficial to improve these results, evidence is scarce. Researchers from the University Hospital Gregorio Marañón and other centers in Spain designed an open, multicenter and prospective trial to evaluate the effects of this type of exercises in the maturation of AVFs in patients with renal disease requiring dialysis. Exclusion criteria were patients with absence of arteries or veins apt for AVF, diagnosis of coagulopathy, existence of prior AVF in the selected arm or other conditions that turn impossible the practice exercise during the 8 weeks prior to surgery. Patients assigned to the isometric exercise group were indicated a routine combining contractions with elastic bands and manual contractions, in which each isometric contraction was to be maintained for 5 to 7 seconds. The intensity of exercises was adjusted according to the maximum strength of each patient measured by dynamometry. Doppler studies were conducted at the beginning during the week prior to surgery (8 weeks as from admission) and an extra study was conducted at 4 weeks of initiation of exercises with patients in the active group. After performing AVF, maturation was assessed by Doppler at weeks 6 and 12. These studies were performed by nephrologists specialized in AVF ultrasound and comprised 6 measurements of the cephalic vein, as well as three measurements of the radial artery in the

same anatomic sites before and after the exercises. Follow-up was completed 3 months after the AVF. The main endpoint of the study was the impact of isometric exercise in primary failures of the fistula compared with the control group.

Other studied parameters were venous and arterial caliber, peak systolic velocity and maximum strength. The final analysis included 53 patients in the isometric exercise group and 61 controls. After 8 weeks of exercise, significant differences were found in arterial caliber, systolic arterial velocity, venous caliber and maximum strength. The greatest increase in venous caliber and maximum strength were related to age < 60 years, non-diabetic patients and male sex, whereas the highest increase in the arterial diameter and the highest systolic peak were found in females. After 8 weeks, the indication of radiocephalic AVF was more common in the exercise group than in the control group (77,4% vs. 53,3%), noting that in 8 patients priorly scheduled for fistula in the elbow fold, after completing the exercise program it was decided to change for radiocephalic fistula. Although primary failures in the exercise group were less than in the control group, this difference was not statistically significant.

Authors understand that this lack of significance may be due to the low rate of failures in both groups and an insufficient sample. However, they noted an improvement in the venous caliber and the possibility of performing more distal fistulas after exercise. Further studies are required to draw final conclusions and establish an adequate exercise protocol.