

To keep or not to keep: hemodialysis arteriovenous fistula following kidney transplantation

Letter to the Editor I read with great interest the article by Głowiński et al.¹ The study focused on the issue of whether arteriovenous (AV) fistula closure among recipients with successful kidney transplants had an effect on cardiac function. The authors concluded that AV fistula closure in kidney recipients with well-functioning renal grafts had no significant beneficial effect on the heart in a short-term follow-up. In another study, in a group of 180 kidney transplant patients, AV fistula closure was also not associated with a beneficial effect on cardiac function.²

Although transplant physicians frequently face the difficult task of advising kidney transplant patients whether it is safe to keep the functioning AV fistula or not, surprisingly few studies have reported the cardiac effect of AV fistula closure after successful kidney transplantation. In 2 prospective studies on kidney transplant recipients with stable allograft function, an improvement in left ventricular (LV) hypertrophy and a reduction in the LV end-diastolic diameter were observed after AV fistula ligation.^{3,4} Moreover, patent AV fistula was independently associated with increased arterial stiffness in a multivariate analysis.⁵ On the other hand, several studies showed that AV fistula had no significant adverse effects on cardiac function in long-term periods.^{6,7} It should be noted that symptomatic cardiac failure associated with a high-flow AV fistula is uncommon and usually occurs in pre-existing heart disease.⁸

In a series of 311 kidney transplant patients, AV fistula ligation was associated with a better allograft renal function at 1 year after transplantation, and the risk of future allograft loss was decreased compared with recipients with patent AV fistula.⁹ This study provides an additional argument in favor of AV fistula closure in kidney recipients after successful kidney transplantation.

Although AV fistula closure after renal transplantation could be beneficial for cardiac and renal function, there is no consensus over the strategy for keeping or ligating AV fistula among kidney transplant patients with well-functioning grafts. Furthermore, despite controversial findings, most

transplant physicians suggest that AV fistula ligation is not routinely required in kidney recipients with stable renal allograft function. They believe that AV fistula closure should only be considered in patients with strong indications such as the presence of a large, high-flow AV fistula, cosmetic reasons, or high risk of cardiovascular diseases.

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Author response Thank you for your comments. We were glad to learn that the problem of the vascular access after successful kidney transplantation is important all over the world. Such interest stimulates investigations and may soon bring a solution to our title question.

An interesting paper published by Soleimani et al.¹ regarded 180 kidney allograft recipients. However, the groups with patent and occluded vascular access included 23 and 17 patients, respectively. It confirms our difficulties with the recruitment of a satisfactory number of patients.

Pre-existing heart disease is very common in patients with end-stage renal disease, and obviously high-flow fistula will worsen the condition. An increase in fistula flow is time-related, as in the case of other concomitant diseases (anemia, coronary artery disease, diabetes, arteriosclerosis, secondary hyperparathyroidism, etc.). Isolating only the fistula effect would be extremely difficult. On the other hand, there is evidence that ligation of high-flow fistula can improve cardiac function.²⁻⁴

A large study on AV fistula and kidney function, published by Vajdic et al.,⁵ had been conducted for 8 years. Only 2 fistulas were ligated, while 70 were occluded spontaneously during follow-up. The authors reported better allograft function in patients with nonfunctioning fistula (observation was based on an estimated glomerular filtration rate, which was 74 vs. 69 ml/min/1.73m²). However, the authors concluded that “we ligate or extirpate an AVF [AV fistula] only when there is a clinical problem”.⁵

The question of whether to close or not to close AV fistulas still remains open and the answer depends on the clinical condition of individual cases.

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