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Management of High Output AVF failure

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Arteriovenous fistula or graft is essential to hemodialysis. For hemodialysis (HD) access, connecting the high resistant artery to the low resistant vein causes to increase cardiac output. In the initial era of hemodialysis, end stage kidney disease (ESKD) patients were younger. Their HD access were distal forearm access. However, in the modern HD era, our ESKD patients are commonly elderly and frequently very elderly (over 80 years old). These elderly ESKD patents have poor vessel qualities unsuitable for distal forearm access, Their HD access are commonly upper arm access prone to high-flow HD access. The cardiac status of these modern elderly ESKD patients is also vulnerable to high-flow access. High flow HD access can lead to high output cardiac failure in ESKD patients. The initial work up for high flow HD access is the flow measurement by doppler ultrasound. And then if HD access flow volume (Qac) over 2000 ml/min, the further work up including cardiac output and cardio-pulmonary recirculation ratio caused by HD access should be considered strongly. Treatment of high flow HD access is the flow reduction. There are several surgical and endovascular methods for flow reduction such as flow reduction surgery, short segment small diameter graft interposition at inflow area of HD access and banding. The patients with high flow HD access are generally asymptomatic. Therefore, enough explanation and letting the patients with high-flow and high output cardiac failure recognize the detailed prognosis of these disease entities. More attention to high flow HD access will be required among the nephrologists.