

Evidence Discussion (PVD 8.1-8.2)

Hemodialysis Access for creation and maintenance

Hemodialysis access imaging is required to assess options for creation of hemodialysis access as well as to evaluate for maturation, failure and complications related to the access and outflow central veins.

Prior to creation of a native arteriovenous fistula (AVF), venous duplex ultrasound should be performed of both upper extremities to assess for adequate vein for fistula creation on all patients. Vessel mapping should include arterial inflow assessment to assess size, degree of stenosis and areas of calcification that may exclude access creation. Advanced imaging (CT or MR) of the chest or upper extremity may be indicated to further assess abnormalities identified on duplex imaging or evidence of central venous outflow obstruction.

Duplex evaluation of hemodialysis access should be performed for patients with evidence of failed maturation, poor function of access or complication related to the use of the hemodialysis access by history, physical exam or functional parameters during dialysis. These parameters may include: elevated venous pressures, inefficient dialysis, and recirculation greater than 10-15% or decreased flow.

CT or MR of the chest may be indicated for patients with a history of central venous catheters or pacemaker/ICD wires, signs and symptoms of ipsilateral central venous stenosis including arm swelling, venous collaterals or prolonged bleeding after dialysis.

References

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2. Ibrahim A, Ali H, Raza H, Mohamed M. Hemodialysis Access Surveillance: A Review of the Literature. *Saudi J Kidney Dis Transpl*. 2022;33(Supplement):S66-S76. doi:10.4103/1319-2442.367827.
3. Lok CE, Huber TS, Lee T, et al. KDOQI Clinical Practice Guideline for Vascular Access: 2019 Update [published correction appears in *Am J Kidney Dis*. 2021 Apr;77(4):551. doi: 10.1053/j.ajkd.2021.02.002]. *Am J Kidney Dis*. 2020;75(4 Suppl 2):S1-S164. doi:10.1053/j.ajkd.2019.12.001.