In summary, this chapter reflects on the shortcomings of current access modalities and discusses potential avenues to improve VA outcomes in the future" Shenoy (2017).

Abstract:

Delivery of a prescribed dialysis dose, which is critical for longevity on hemodialysis, is directly dependent on vascular access (VA). However, VA is fraught with high failure rates and has room for innovation. Arteriovenous fistula (AVF), considered the 'best choice', has a high 'failure to mature' rate.

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Arteriovenous grafts (AVGs) are considered when patients are poor candidates for or have failed AVF, but have a high incidence of infections and thrombosis. Due to associated morbidity and mortality from complications, central venous catheters are considered only as 'bridging short-term access' when there is an urgent need for dialysis. The observation from current data that there is a significant center effect in the rate of AVF maturation supports investigation to identify factors that contribute to success in high-performing centers that create AVF and establish 'best practice' approaches to improve outcomes. Biocompatible AVG constructs that promote rapid tissue incorporation withstand needle punctures due to better integrity and can improve current AVG outcomes. Stenosis in the 'access circuit' is a major cause for short- and long-term permanent access failure. While the pathology of stenosis development is well understood, factors responsible for this problem are poorly studied. Increased flow in the access circuit likely plays a major role in the development of such stenosis. Investigation into understanding the hemodynamics of this flow may help identify etiology and stenosis sites perhaps even prior to the event, thus providing potential targets to mitigate the stenotic response. In summary, this chapter reflects on the shortcomings of current access modalities and discusses potential avenues to improve VA outcomes in the future.

Reference:

Shenoy, S. (2017) Future Trends in Vascular Access Creation. Contributions to Nephrology. December 12th. 189, p.252-256. .

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