Hubungan Blood Flow Rate Arteri Brakialis Proksimal dan Distal Anastomosis Dengan Ketepatan Pengukuran Blood Flow Rate Vena Outflow Pasca Fistula Arteriovenosa Brakiosefalika Pada Penyakit Ginjal Tahap Akhir = Correlation of Proximal and Distal Brachial Artery Anastomosis with the Accuracy of Blood Flow Measurement in the Outflow Vein after Brachiocephalic Arteriovenous Fistula in End-Stage Kidney Disease

Febian Aji Wicaksono, author

Abstrak

Penyakit ginjal tahap akhir (PGTA) merupakan masalah kesehatan masyarakat yang memerlukan terapi pengganti ginjal (TPG) seperti Hemodialisis. Fistula Arteriovenosa (FAV) merupakan pilihan akses vaskular terbaik bagi penderita yang menjalani hemodialisis. Akan tetapi, kegagalan maturasi FAV relatif tinggi akibat gangguan dari iÌnflow dan/atau outflow. Pengukuran peningkatan Blood Flow Rate (BFR) pada arteri brakialis proksimal anastomosis, distal anastomosis dan vena outflow dapat mengidentifikasi penyebab kegagalan maturasi FAV. Penelitian dilakukan di RSCM, RS Hermina Depok dan RS Hermina Bekasi pada periode Februari 2024 – Mei 2024. Desain penelitian kohort prospektif menggunakan data primer meliputi: usia, jenis kelamin, hipertensi, merokok, diabetes melitus, aterosklerosis, riwayat pemasangan catheter double lumen (CDL) dan hasil pengukuran USG doppler berupa diameter arteri brakialis, vena sefalika dan BFR arteri brakialis preoperasi serta BFR arteri brakialis proksimal anastomosis, distal anastomosis dan vena outflow (OV) segera setelah tindakan AVF, hari ke 7, hari ke 14 sampai minggu ke 6. Dari total 45 subjek yang memenuhi kriteria inklusi dan eksklusi, terdapat 36 subjek yang mengalami maturasi dalam 6 minggu pascaoperasi. Dengan analisis multivariat uji t-tidak berpasangan, didapatkan diameter arteri brakialis dan vena sefalika nilai rerata >2,5 mm serta nilai BFR arteri brakialis preoperasi 66,22 ± 22,60 (p<0,001). Didapatkan batasan nilai persentase peningkatan BFR arteri brakialis proksimal 167,23% pada hari ke-7 yang memprediksi keberhasilan maturitas FAV brakiosefalika setelah 6 minggu pascaoperasi dengan sensitivitas 58,3%, spesifisitas 87,5%, interval kepercayaan 97,3%. Nilai persentase peningkatan OV diatas 186,92% pada hari ke-7 dan diatas 468,0% pada hari ke-14 dapat memprediksi keberhasilan maturitas FAV pada minggu ke-6 dengan sensitifitas dan spesifisistas sebesar 61,1% dan 100% untuk hari ke-7 dan 80,6% dan 100% untuk hari ke-14. Sebagai kesimpulan Peningkatan persentase BFR arteri brakialis proksimal anastomosis dan vein outflow hari ke-7 pasca tindakan FAV dapat dipakai sebagai prediktor maturitas FAV brakiosefalika.

.....End-stage kidney disease (ESKD) is a public health problem that requires kEnd-stage kidney disease (ESKD) is a public health problem that requires Kidney replacement therapy (KRT) such as hemodialysis. Arteriovenosa fistula (AVF) is the best vascular access option for patients undergoing hemodialysis. However, AVF maturation failure is relatively high due to interruption of inflow and/or outflow. Measurement of increased Blood Flow Rate (BFR) in the brachial arteries of the proximal anastomosis, distal anastomosis and venous outflow can identify the cause of AVF maturation failure. The study was conducted at Ciptomangunkusumo Hospital, Hermina Depok Hospital and Hermina Bekasi Hospital in the period February 2024 – May 2024. The design of the prospective cohort study using primary data includes:

age, gender, hypertension, smoking, diabetes mellitus, atherosclerosis, a history of installation of a double lumen catheter and doppler ultrasound measurements of the diameter brachial artery, cephalic vein and BFR of the preoperative brachialis artery as well as BFR proximal anastomosis, distal anastomosis and outflow vein immediately after the AVF operation, day 7, day 14 to week 6. A total of 45 subjects met the inclusion and exclusion criteria. Of these, 36 had matured within six weeks of the operation. A multivariate analysis of the non-pairing t-test revealed that a percentage increase of 167.23% in brachial artery BFR on the 7th day can predict the successful maturation of brachiocephalic AVF after 6 weeks of postoperative treatment. This model demonstrated a sensitivity of 58.3% and a specificity of 87.5%, with a confidence interval of 97.3%. The percentage value of OV increase above 186.92% on day 7 and above 468.0% on the 14th day can be used to predict the success of AVF maturity on week 6. This approach has a sensitivity and specificity of 61.1% and 100% for day 7th and 806% and 100% for day 14th. As a conclusion Increased percentage of BFR of proximal brachial artery anastomosis and venous outflow on day 7 after AVF can be used as a predictor of brachiocephalic FAV maturity.