

## Akurasi volume flow arteri brachialis sebagai prediktor maturasi fistula arteriovena brachiosefalika di RSCM = Accuracy of volume flow of brachial artery as predictor maturation of brachiocephalic arteriovenous fistula at RSCM

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### Abstrak

Latar belakang: Hemodialisis merupakan salah satu tatalaksana penting yang dilakukan pada pasien dengan penyakit ginjal kronik (PGK) stadium 5 atau penyakit ginjal stadium akhir. Komplikasi akses hemodialisis lebih rendah pada penggunaan akses hemodialisis autogen dibandingkan dengan penggunaan akses prostetik. Maturitas fistula arteriovena sangat menentukan keberhasilan suatu akses vaskular untuk hemodialisis. Pemeriksaan *Volume flow* pada draining vein yang sesuai dengan kriteria K/DOQI dapat menentukan maturitas suatu akses fistula arteriovena (FAV). Pada penelitian ini diharapkan *volume flow* pada arteri brachialis dapat mewakili *volume flow* pada draining vein dalam menentukan maturitas suatu FAV. Subjek dan Metode : subjek adalah pasien dengan PGK stadium 5, sudah menjalani pembuatan FAV brachiosefalika usia 6 minggu dan sudah menjalani hemodialisa. Pada pasien diukur *volume flow* arteri brachialis dan draining vein dengan usg Doppler probe linier. Penelitian ini menggunakan desain potong lintang untuk mendapatkan hubungan *volume flow* arteri brachialis dengan maturitas FAV brachiosefalika. Hasil : FAV brachiosefalika ( $n=80$ ) usia 6 minggu dievaluasi. Pada FAV brachiosefalika matur, didapatkan rerata *volume flow* arteri brachialis ( $1901\pm 1030$ ) sedangkan yang tidak matur didapatkan rerata *volume flow* arteri brachialis ( $563\pm 152$ ). Sedangkan rerata *volume flow* draining vein pada FAV brachiosefalika matur ( $2707\pm 1717$ ) lebih tinggi dari tidak matur ( $500\pm 73$ ). Pada arteri brachialis didapatkan *cut-off* sebesar 700 ml/mnt dengan sensitifitas 98,44 %, spesifisitas 87,5 %, *positive predictive value* 96,92 %, *negative predictive value* 93,33 % dan akurasi 96,25 %. Kesimpulan : *volume flow* arteri brachialis  $> 700$  ml/mnt, memiliki nilai predictor yang baik untuk menilai maturasi FAV brachiosefalika, sehingga didapatkan nilai yang lebih akurat dan cepat dalam menilai maturasi suatu FAV.

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Background: Hemodialysis is one of the important treatments in patients with stage 5 chronic kidney disease (CKD) or end-stage renal disease. Complications of hemodialysis access are lower in the use of access to autogenous hemodialysis compared to the use of prosthetic access. The maturity of arteriovenous fistula greatly determines the success of a vascular access to hemodialysis. The maturity of arteriovenous fistula depends on the preoperative preparation of arteriovenous fistula making. Examination of volume flow in draining veins that are in accordance with K / DOQI criteria can determine the maturity of an arteriovene fistula access (FAV). In this study it is expected that the volume flow in the brachial artery can represent volume flow in the draining vein in determining the maturity of an FAV. Subjects and Methods: Subjects were patients with stage 5 CKD, who had brachiosefalic FAV 6 weeks of age and had hemodialysis. The patient measured brachial artery flow volume and draining vein with linear ultrasound Doppler probes. This study used a cross-sectional design to obtain a relationship between the volume flow of the brachial artery

and the brachiocefalic FAV maturity. Result : Brachiocephalic FAV (n = 80) 6 weeks of age were evaluated. In the mature brachiocefalic FAV, the mean volume flow of brachial artery was (1901 ± 1030) while the non-mature FAV, the volume flow was (563 ± 152). While the mean volume flow of draining vein in mature brachiocephalic FAV (2707 ± 1717) is higher than immature (500 ± 73). The brachial artery obtained a cut-off of 700 ml / min with sensitivity of 98.44%, specificity of 87.5%, positive predictive value of 96.92%, negative predictive value of 93.33% and accuracy of 96.25%. Conclusion: Brachial artery flow volume > 700 ml / min, has a good predictor value for assessing brachiocefalic FAV maturation, so that a more accurate and faster value is obtained in assessing the maturation of a FAV.