

Pengaruh Latihan Isometrik Terhadap Perubahan Diameter, Peak Systolic Velocity, Intima Media Thickness dan Volume flow Arteri Radialis dan Vena Cephalica Pada Pasien Gagal Ginjal Kronis Sebelum Tindakan Pembuatan Fistula Radiocephalica = Effect of Isometric Exercise on Changes in Vascular Diameter, Peak Systolic Velocity, Intima Media Thickness and Volume flow of Radial Artery and Cephalic Vein in Patients with Chronic Renal Failure Before Radiocephalic AV Fistula Making Procedure

Hendra Wibowo, author

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Abstrak

Penyakit Ginjal Kronik (PGK) merupakan kelainan struktur atau fungsi ginjal yang mengalami penurunan selama 3 bulan yang mengalami peningkatan prevalensi kasus. Peningkatan prevalensi kejadian PGK juga akan meningkatkan kebutuhan hemodialisis dan penggunaan arteriovenous fistula (AVF). Maturasi dan keberhasilan AVF dipengaruhi oleh faktor pasien dan struktur vaskular. Latihan isometrik dilaporkan dapat meningkatkan diameter vena, arteri, dan peak systolic velocity (PSV). Tujuan penelitian ini untuk melihat pengaruh latihan isometrik pre operatif terhadap diameter vena cephalica, diameter arteri radialis, PSV, intimal medial thickening (IMT), dan volume flow arteri radialis. Desain penelitian adalah eksperimental pre and post-test study, dilakukan di RSUPN Cipto Mangunkusumo. Penelitian dilaksanakan follow up pasien selama 8 minggu latihan isometri. Total subjek penelitian sebanyak 38 orang. Usia median subjek penelitian yaitu 56 tahun dengan rentang usia 20 sampai 71 tahun. Terdapat perbedaan yang signifikan antara diameter vena ($p=0,003$), PSV ($p=0,032$), dan volume flow ($p=0,030$) subjek penelitian pre dan post latihan isometrik. Terdapat perbedaan signifikan antara perubahan diameter vena terhadap komorbid diabetes melitus. Tidak terdapat perbedaan bermakna antara perubahan diameter vena, PSV, dan volume flow paska latihan ismoetrik terhadap kelompok usia, komorbid, dan jenis kelamin ($p>0,005$). Penggunaan latihan isometrik dapat meningkatkan perubahan diameter vena, PSV dan volume flow pada pasien sebelum pembuatan AVF radiocephalica. Tidak terdapat perubahan signifikan diameter vena pasca latihan isometrik pada penderita diabetes melitus.

.....Chronic Kidney Disease (CKD) is a disorder of kidney structure or function that has decreased over 3 months and has an increased prevalence of cases. The increasing prevalence of CKD will also increase the need for hemodialysis and the use of arteriovenous fistula (AVF). AVF maturation and success are influenced by patient factors and vascular structure. Isometric exercise is reported to increase the diameter of veins, arteries, and peak systolic velocity (PSV). Objective: Analyzing the effect of preoperative isometric exercise on the diameter of veins, arteries, PSV, intimal medial thickening (IMT), and volume flow. The research design was an experimental pre and post-test study, conducted at Cipto Mangunkusumo Center National Hospital. The study was conducted to follow up patients for 8 weeks of isometric exercise. The total study subjects were 38 people, with the highest prevalence being men, and comorbid hypertension. The median age of the research subjects was 56 years with an age range of 20 to 71 years. There were significant differences between venous diameter ($p=0.003$), PSV ($p=0.032$), and volume flow ($p=0.030$) in pre and post isometric training subjects. There was significant difference between cephalic vein diameter to

diabetes mellitus group. There was no significant difference between changes in radial artery diameter, PSV, IMT, and post-isometric exercise volume flow for the age, comorbid, and sex groups ($p>0.005$). The use of isometric exercises can increase changes in venous diameter, PSV and volume flow in patients before the making of radiocephalic AVF. There was no significant change in venous diameter after isometric exercise in patient with diabetes mellitus.