

Višestruka arterijska revaskularizacija miokarda korištenjem radijalne arterije: 20 godina iskustva

Arterial myocardial revascularization using the radial artery: 20 years of experience

 Davor Barić^{1*},
 Daniel Unić¹,
 Robert Blažeković¹,
 Željko Sutlić¹,
 Bojan Biočina²,
 Igor Rudež¹

¹Klinička bolnica Dubrava, Zagreb, Hrvatska
²Medicinski fakultet Sveučilišta u Zagrebu, Klinički bolnički centar Zagreb, Zagreb, Hrvatska

¹University Hospital Dubrava, Zagreb, Croatia

²University of Zagreb School of Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

KLJUČNE RIJEČI: kirurška revaskularizacija miokarda, arterijska revaskularizacija, radijalna arterija.

KEYWORDS: myocardial revascularization, arterial revascularization, radial artery.

CITATION: *Cardiol Croat.* 2018;13(11-12):313. | <https://doi.org/10.15836/ccar2018.313>

***ADDRESS FOR CORRESPONDENCE:** Davor Barić, Klinička bolnica Dubrava, Av. Gojka Šuška 6, HR-10000 Zagreb, Croatia. / Phone: +385-98-614054 / E-mail: dbaric@kdb.hr

ORCID: Davor Barić, <https://orcid.org/0000-0001-5955-0275> • Daniel Unić, <https://orcid.org/0000-0003-2740-4067>
Robert Blažeković, <https://orcid.org/0000-0001-7125-361X> • Željko Sutlić, <https://orcid.org/0000-0001-6926-9436>
Bojan Biočina, <https://orcid.org/0000-0003-3362-9596> • Igor Rudež, <https://orcid.org/0000-0002-7735-6721>

Uvod: Višestruka arterijska kirurška revaskularizacija miokarda donosi bolju dugoročnu prohodnost presadaka, nižu incidenciju većih kardiovaskularnih zbivanja i bolje dugoročno preživljenje bolesnika u odnosu na revaskularizacije kod kojih je korišten samo jedan arterijski presadak¹⁻³. Radijalna arterija (RA) pokazala se kao odličan izbor drugog arterijskog presatka s nizom prednosti u odnosu na alternativne. U ovom istraživanju prikazujemo 20-godišnje iskustvo s korištenjem RA u koronarnoj kirurgiji u našoj ustanovi.

Bolesnici i metode: U retrospektivnu studiju uključeni su svi bolesnici kod kojih je korištena RA u sklopu kirurške revaskularizacije miokarda s više arterijskih presadaka. Iz kliničke baze podataka korišteni su i analizirani demografski podaci, podaci o tijeku liječenja i o izmjerenim protocima kroz kreirane presatke.

Rezultati: Od 1998. godine korišteno je ukupno 1421 presadaka RA kod ukupno 1.302 bolesnika. Prosječni broj distalnih anastomoza po bolesniku iznosio je $2,6 \pm 0,6$ (2-5). U 936 bolesnika (72%) učinjena je potpuna arterijska revaskularizacija. Kod 66 (5%) bolesnika dodatno je učinjen zahvat na aortnom ili mitralnom zalisku ili je rađena rekonstrukcija lijeve klijetke. Kod 615 bolesnika (50% bolesnika s izoliranom koronarnom bolesti srca) revaskularizacija je postignuta bez korištenja stroja za izvantjelesni krvotok (*off-pump* CABG). Nisu zabilježene ishemijske komplikacije podlaktice ili infekcija operacijske rane. Kod 2 bolesnika (0,15%) zabilježena je ozljeda radijalnog žilca. RA presadak najčešće je korišten u slivu cirkumfleksne arterije (641 presadak, 42%) i desne koronarne arterije (599 presadaka, 38%). Intraoperacijska mjerenja protoka kroz kreirane presatke pokazala su izvrstan prosječni protok (46,6 ml/min), dijastoličko punjenje (62,9%) te pulsatilni index (2,6).

Zaključak: Iako ovo retrospektivno istraživanje ne omogućuje donošenje zaključaka o dugoročnoj prohodnosti presadaka RA ili preživljenja bolesnika, navedeni višedesetljetni rezultati pokazuju da se RA može jednostavno i uspješno rutinski koristiti u sklopu kirurške revaskularizacije miokarda s vrlo niskim brojem komplikacija i izvrsnim intraoperacijskim protocima kroz iste.

Background: Multiple arterial myocardial revascularization seems to offer better long-term graft patency, lower incidence of major adverse cardiac and cerebrovascular events and better long-term survival compared to revascularization with usage of single arterial graft¹⁻³. Radial artery (RA) has shown to be an excellent choice for second arterial graft, with several benefits over alternative options. Here is presented the 20 years long experience of using radial artery in our Clinic.

Patients and Methods: In this retrospective study all patients in whom RA was used for surgical myocardial revascularization with multiple arterial grafts were included. Demographic and perioperative data, as well as transit-time flow measurement data were gathered from our Clinic's database.

Results: There has been a total of 1421 RA grafts used in 1302 patients since 1998. The mean of distal anastomosis was 2.6 ± 0.6 (2-5). Total arterial revascularization was achieved in 936 (72%) patients. In 66 patients (5%) additional procedure on aortic valve, mitral valve or left ventricle was performed. In 615 patients (half of patients with isolated coronary artery disease) revascularization was done as an *off-pump* CABG. There were no ischemic complications or postoperative wound infections. 2 patients (0.15%) had radial nerve injury. Radial artery grafts were mostly used in circumflex artery territory (641 grafts, 42%) and right coronary artery territory (599 grafts, 38%). Intraoperative transit-time flow measurements were routinely performed and showed excellent mean flow (46.6 ml/min), diastolic filling (62.9%) and pulsatility index (2.6).

Conclusion: Although this study does not provide any conclusions about long-term graft patency or patient survival, results for the past two decades show that radial artery can be routinely used in multiple arterial myocardial revascularization with exceedingly rare complications and excellent intraoperative flows.

RECEIVED:
October 23, 2018

ACCEPTED:
November 5, 2018



LITERATURE

1. Goldstone AB, Chiu P, Baiocchi M, Wang H, Lingala B, Boyd Jh, et al. Second Arterial Versus Venous Conduits for Multivessel Coronary Artery Bypass Surgery in California. *Circulation.* 2018 Apr 17;137(16):1698-1707. <https://doi.org/10.1161/CIRCULATIONAHA.117.030959>
2. Taggart DP, Altman DG, Flather M, Gerry S, Gray A, Lees B, et al; ART (Arterial Revascularization Trial) Investigators. Associations Between Adding a Radial Artery Graft to Single and Bilateral Internal Thoracic Artery Grafts and Outcomes: Insights From the Arterial Revascularization Trial. *Circulation.* 2017 Aug 1;136(5):454-463. <https://doi.org/10.1161/CIRCULATIONAHA.117.027659>
3. Yi G, Shine B, Rehman SM, Altman DG, Taggart DP. Effect of bilateral internal mammary artery grafts on long-term survival: a meta-analysis approach. *Circulation.* 2014 Aug 12;130(7):539-45. <https://doi.org/10.1161/CIRCULATIONAHA.113.004255>