Antekubitalni venski pristup – novi pristup za kateterom posredovano liječenje akutne plućne embolije

Antecubital venous access – a new approach for catheter - directed treatment of acute pulmonary embolism

Lovel Giunio, Mislav Lozo*, Anteo Bradarić, Jakša Zanchi

Medicinski fakultet Sveučilišta u Splitu, Klinički bolnički centar Split, Split, Hrvatska
University of Split School of Medicine, University Hospital Centre Split, Split, Croatia

KLJUČNE RIJEČI: akutna plućna embolija, kateterom posredovano liječenje, antekubitalni pristup, tromboliza.
KEYWORDS: acute pulmonary embolism, catheter-directed treatment, antecubital approach, thrombolysis.
CITATION: Cardiol Croat. 2016;11(10-11):471. | **DOI:** http://dx.doi.org/10.15836/ccar2016.471
***ADDRESS FOR CORRESPONDENCE:** Mislav Lozo, Klinički bolnički centar Split, Spinčićeva 1, HR-21000 Split, Croatia. / Phone: +385-98-193-4701 / E-mail: mislav.lozo@yahoo.com
ORCID: Lovel Giunio, http://orcid.org/0000-0002-1268-5698 • Mislav Lozo, http://orcid.org/0000-0001-7530-4760 Anteo Bradarić, http://orcid.org/0000-0002-9843-6309 • Jakša Zanchi, http://orcid.org/0000-0003-2700-2121

Uvod: Neliječena masivna plućna embolija (PE) rezultira stopom smrtnosti od oko 30%, najčešće unutar prvih nekoliko sati od početka simptoma, a koja može porasti čak i do 50% tijekom prva 3 mjeseca. Kateterom posredovana terapija (CDT), zbog mehaničke fragmentacije ugruška, pomicanja opstruirajućeg tromba iz glavih u distalne segmente plućne arterije te trombolizom poboljšane razgradnje ugruška nudi brzo smanjenje tlaka plućne arterije, smanjuje naprezanje desne klijetke te smanjuje plućni vaskularni otpor dok istovremeno povećava sistemsku perfuziju i olakšava oporavak desne klijetke.[1] Sistemska primjena trombolitika nosi i do 20% rizik velikog krvarenja, uključujući i 2% do 5% rizik intrakranijalnog krvarenja zbog čega se nevoljko primjenjuje.[2] CDT nudi zanimljivu alternativu jer zbog lokalne primjene doza trombolitika može biti znatno smanjena. Do sada su uglavnom korišteni proksimalni venski pristupi, najčešće transfemoralni ili transjugularni. Prikazujemo rezultate prvih CDT tretmana kroz kubitalnu venu.

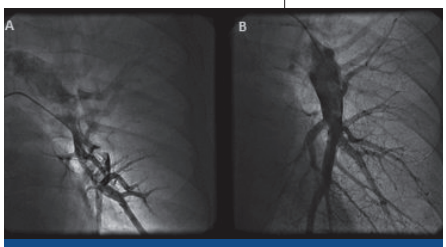

FIGURE 1. Pulmonary angiogram A) prior procedure shows massive pulmonary embolism B) 12h after catheter-directed pharmacomechanical thrombolysis, almost complete restoration of pulmonary flow.

Pacijenti i metode: 17 uzastopnih bolesnika s dijagnozom akutne PE potvrđeno kompjutoriziranom tomografijom od siječnja do kolovoza 2016. godine bilo je uključeno u ovu studiju. CDT je uključivala mehaničku fragmentaciju i primjenu dodatne trombolitičke terapije putem *pigtail* katetera pozicioniranog u plućnoj arteriji.

Rezultati: Tehnički uspjeh postignut je u svih bolesnika, a kod svih bolesnika uočeno je značajno poboljšanje hemodinamike i plućne angiografije 12 sata nakon postupka (**slika 1**). Nije bilo većih periproceduralnih komplikacija.

Zaključak: Kateter smješten u plućnoj arteriji omogućuje kontinuirano praćenje plućne hemodinamike, kontrolnu angiografiju i dodatnu intervenciju/e ako je potrebno. CDT kroz kubitalnu venu je izvediv u velike većine bolesnika, nudi značajno smanjenje doze trombolitika s niskim periproceduralnim komplikacijama i može se razmatrati kao prva linija liječenja za akutne PE u centrima s iskustvom.

Background: Untreated massive pulmonary embolism (PE) results in mortality rate of approximately 30%, most frequently within the first few hours of onset and up to 50% 3-month mortality. Catheter-directed therapy (CDT), due to mechanical fragmentation of the clot, removal of obstructing thrombi from the main to distal pulmonary arteries and thrombolytic-enhanced clot lysis, offers rapid reducing of pulmonary artery pressure, right ventricle strain, and pulmonary vascular resistance while simultaneously increase systemic perfusion and facilitate right ventricle recovery.[1] Systemic thrombolytic application carries up to a 20% risk of major bleeding, including a 2% to 5% risk of intracranial hemorrhage and is unwillingly prescribed.[2] CDT offers interesting alternative since, due to local application, dose can be significantly reduced. So far, predominantly the proximal venous access sites, most often transfemoral or transjugular, were used. We report the results of first CDT treatments via the antecubital venous access.

Patients and Methods: 17 consecutive patients presenting with clinical diagnosis of acute PE confirmed by computed tomographic angiography from January to August 2016 were enrolled in the trial. CDT involved mechanical catheter fragmentation and the application of adjuvant thrombolytic therapy through a pigtail catheter positioned in the pulmonary artery.

Results: Technical success was achieved in all patients, and in all patients significant improvement in hemodynamics and pulmonary angiography was observed 12 h after procedure (**Figure 1**). There were no major periprocedural complications.

Conclusion: Catheter positioned in the pulmonary artery allows continuous assessment of pulmonary hemodynamics, follow-up angiography and additional intervention/s if needed. CDT via cubital vain is feasible in vast majority of patients, offers significant dose reduction with low periprocedural complications and should be considered as a first line treatment for acute PE in experienced centers.

RECEIVED:
October 2, 2016
ACCEPTED:
October 10, 2016

LITERATURE

1. Engelberger RP, Kucher N. Catheter-based reperfusion treatment of pulmonary embolism. Circulation. 2011;124(19):2139-44. **DOI:** http://dx.doi.org/10.1161/CIRCULATIONAHA.111.023689.
2. Riera-Mestre A, Becattini C, Giustozzi M, Agnelli G. Thrombolysis in hemodynamically stable patients with acute pulmonary embolism: a meta-analysis. Thromb Res. 2014;134(6):1265-71. **DOI:** http://dx.doi.org/10.1016/j.thromres.2014.10.004