C-reaktivni protein, a ne troponin T, poboljšava predviđanje rizika smrtnosti kod hipertenzivnih bolesnika s tipom A akutne disekcije aorte

C-reactive protein, but not cardiac troponin T, improves risk prediction of hospital mortality in hypertensive patients with type A acute aortic dissection

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KLJUČNE RIJEČI: C-reaktivni protein, troponin T, D-dimeri, disekcija aorte, smrtnost.

KEYWORDS: C-reactive protein, troponin T, D-dimer, aortic dissection, mortality.

CITATION: Cardiol Croat. 2014;9(9-10):331.

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UVOD: Cilj ovog istraživanja bio je analizirati prognostičku ulogu upalnih biljega (CRP, leukociti, fibrinogen), troponina T (cTnT) i D-dimera kod tipa A akutne disekcije aorte (AAD) i utvrditi pomažu li dodatno u stratifikaciji rizika u odnosu na vrijednosti IRAD (International Registry of Acute Aortic Dissection) bodovnog sustava.

PACIJENTI I METODE: Biomarkeri su određeni kod prijava u 54 bolesnika, većinom s anamnezom arterijske hipertenzije, u kojih je dijagnosticiran tip A AAD, a primarni ishod bila je bolnička smrtnost.

REZULTATI: Tijekom hospitalnog liječenja 24 bolesnika (44%) su preminula. Preminuli bolesnici bili su stariji (77 vs. 62 god; $p < 0,001$) i rjeđe su bili kardiokirurški liječeni (29% vs. 83%; $p < 0,01$). Razine CRP-a bile su značajno više kod preminulih pacijenata (15,7 vs. 5,0 mg/L; $p < 0,001$), dok se D-dimeri, fibrinogen i leukociti nisu značajno razlikovali između skupina. Pri prijemu u bolnicu, povišene razine cTnT ($\geq 0,01$ ng/mL) zabilježene su kod 18 bolesnika (33%). Nakon multivarijatne analize uključujući dob, spol, strategiju liječenja, vrijeme do dolaska u bolnicu, CRP, cTnT, neovisni pretkazatelji ishoda bili su starija dob (OR=1,09; 95% CI=1,02-1,18), strategija liječenja (OR=0,11; 95% CI=0,02-0,06) i CRP, bilo kao binarna (OR=7,06; 95% CI=1,34-37,36) ili kontinuirana varijabla (OR=1,10; 95% CI=1,01-1,21). Vrijednost cTnT bio je povezan s težinom bolesti, bubrežnom funkcijom i upalom, ali nije neovisno utjecao na bolničku smrtnost. Analiza ROC krivulje pokazala je značajnu povezanost CRP-a i smrtnosti (AUC=0,79; $p < 0,01$). Vrijednosti CRP-a $> 9,8$ mg/L zabilježile su osjetljivost 83% i specifičnost 80% za predviđanje rizika za bolničku smrtnost. Dodavanje CRP-a bodovnom sustavu IRAD poboljšano je predviđanje kratkoročnog ishoda; područje ispod ROC krivulje povećalo se s 0,74 na 0,89 ($p = 0,004$).

ZAKLJUČAK: Vrijednost CRP-a pri prijemu u bolnicu ima neovisnu prognostičku vrijednost u predviđanju smrtnosti kod tipa A AAD, a dodatak CRP-a IRAD zbroju poboljšava diskriminacijsku vrijednost modela, neovisno o trajanju simptoma i strategiji liječenja.

INTRODUCTION: The aim of the study was to evaluate prognostic role of inflammatory biomarkers (C-reactive protein, white blood cells, fibrinogen), cardiac troponin T (cTnT) and D-dimer in type A acute aortic dissection (AAD) and to examine whether they might help in risk stratification beyond values of International Registry of Acute Aortic Dissection (IRAD) score.

PATIENTS AND METHODS: Baseline biomarkers were determined in 54 consecutive predominantly hypertensive patients with type A AAD and evaluated for in-hospital mortality.

RESULTS: During in-hospital stay 24 (44%) patients died. Non-survivors were older (77 vs. 62 y; $p < 0,001$) and less frequently received surgery (29% vs. 83%; $p < 0,01$). CRP levels were significantly higher in non-survivors (15.7 vs. 5.0 mg/L; $p < 0,001$), while D-dimer, fibrinogen and WBCs were comparable in both groups. On admission elevated cTnT levels ($\geq 0,01$ ng/mL) were detected in 18 (33%) of individuals. After multivariable adjustment for age, gender, treatment strategy, time to admission, CRP, cTnT the independent predictors of outcome were age (OR=1.09; 95% CI=1.02-1.18), treatment strategy (OR=0.11; 95% CI=0.02-0.06) and CRP either as binary (OR=7.06; 95% CI=1.34-37.36) or continuous variable (OR=1.10; 95% CI=1.01-1.21). Cardiac TnT was associated with disease severity, renal function and inflammation, but did not independently influence mortality. ROC curve analysis showed significant link between CRP and mortality (AUC=0.79; $p < 0,01$). Values of CRP > 9.8 mg/L had 83% sensitivity and 80% specificity for predicting in-hospital mortality. Addition of CRP to IRAD score improved prediction of short-term outcome, area under ROC curve increased from 0.74 to 0.89 ($p = 0,004$).

CONCLUSION: Admission CRP has independent prognostic value in type A AAD and the addition of CRP to IRAD score improved discriminative capacity of in-hospital mortality irrespective of symptom duration and treatment strategy.

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RECEIVED:
October 1, 2014