Prediktori koronarne ektazije u bolesnika koji su podvrgnuti koronarnoj angiografiji

Predictors of coronary artery ectasia in patients that underwent coronary angiography

Ivica Vuković^{1*},
Petar Pavao Franić²,
Matea Buljubašić²

¹Medicinski fakultet Sveučilišta u Splitu, Klinički bolnički centar Split, Split, Hrvatska

¹University of Split School of Medicine, University Hospital Centre Split, Split, Croatia

²Medicinski fakultet Sveučilišta u Splitu, Split, Hrvatska

²University of Split School of Medicine, Split, Croatia

KLJUČNE RIJEČI: ektazije, koronarna bolest srca, prediktori, koronarografija.

KEYWORDS: ectatic vessels, coronary heart disease, predictors, coronarography.

CITATION: Cardiol Croat. 2014;9(9-10):411-413.

***ADDRESS FOR CORRESPONDENCE:** Klinički bolnički centar Split, Spinčićeva 1, HR-21000 Split, Croatia.

Phone: +385-21-556-840 / E-mail: vukovic@kbsplit.hr

UVOD: Koronarne ektazije su definirane kao lokalizirane ili difuzne dilatacije ≥ 1.5 puta normalnog lumena krvne žile s prevalencijom $< 2\%$. Mogu biti kongenitalne i stečene. Ektazije klasificiramo u četiri podskupine. Upala i ateroskleroza pogoduju nastanku koronarne arterijske ektazije. Cilj istraživanja je utvrditi specifične prediktore koji pogoduju nastanku ektazija i da li postoje razlike u odnosu na stenotične i normalne koronarne arterije.

METODE: Obrađena je 121 povijest bolesti. Ispitanici su podijeljeni u tri skupine, prvu čini 60 bolesnika s ektatičnim te dvije kontrolne skupine od po 30 bolesnika s normalnim i stenotičnim krvnim žilama. Obrađeni su podatci o mogućim prediktorima: biološkim čimbenicima rizika na koje se ne može utjecati (starost, spol, nasljeđe); biološkim čimbenicima rizika na koje se može utjecati (indeks tjelesne mase, arterijski tlak, GUK, pušenje, kolesterol, HDL, LDL, trigliceridi, mokraćna kiselina, alkohol); biljezima nekroze srčanog mišića (troponin, CPK, CK-MB, LDH); biljezima tromboze (D-dimeri) i upalnim biljezima (CRP).

REZULTATI: Postoji statistički značajna razlika u vrijednostima prediktora između skupina bolesnika s različitim tipovima krvnih žila (tablica 1). U podtipovima ektazija ističe

INTRODUCTION: Coronary ectasia is defined as localized or diffuse dilatation ≥ 1.5 times the normal vascular lumen with prevalence $< 2\%$. They may be congenital and acquired. Ectasia classified into four subgroups. The aim of the research is to identify predictors that favor the emergence to coronary artery ectasia and whether there are differences in predictors for the occurrence of coronary artery ectasia compared to stenotic and normal coronary arteries.

METHODS: The study analyzed 121 medical history. Subjects were divided into three groups: the first makes 60 patients with coronary ectasia and two control groups each containing 30 patients with normal and stenotic arteries. The study processed data on possible predictors: biological risk factors that can not be influenced (age, gender, heritage); biological risk factors that can be influenced (body mass index, blood pressure, blood glucose, smoking, cholesterol, HDL, LDL, triglycerides, uric acid, alcohol); markers of myocardial necrosis (troponin, CPK, CK-MB, LDH); markers of thrombosis (D-dimers) and inflammatory markers (CRP).

RESULTS: There was a statistically significant difference in predictors between groups of patients with differ-

TABLE 1.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
TROPONIN I	Between groups	2572589	2	1286295	4495	.014
	Within groups	20889050	73	286151		
	Total	23461.64	75			
CPK	Between groups	64479155429	2	32239577714	3719	.027
	Within groups	927591520244	107	8669079628		
	Total	992070675673	109			
LDH	Between groups	291821356	2	145910678	3480	.035
	Within groups	3815040953	91	41923527		
	Total	4106862309	93			

ANOVA test between groups of patients with different types of blood vessels and predictors of coronary artery ectasia (significant differences highlighted in green, CPK = creatine phosphokinase, LDH = lactate dehydrogenase).

RECEIVED:
September 22, 2014

TABLE 2.

Dependent Variable				Mean Difference (I-J)	Std. Error	Sig.
TOTAL CHOLESTEROL	LSD	NORMAL	STENOTIC	-8.7955*	0.42633	0.042
			ECTATIC	-0.36508	0.38102	0.34
		STENOTIC	NORMAL	.87955*	0.42633	0.042
			ECTATIC	0.51447	0.36144	0.158
	Bonferroni	ECTATIC	NORMAL	0.36508	0.38102	0.34
			STENOTIC	-0.51447	0.36144	0.158
		NORMAL	STENOTIC	-0.87955	0.42633	0.126
			ECTATIC	-0.36508	0.38102	1
		STENOTIC	NORMAL	0.87955	0.42633	0.126
			ECTATIC	0.51447	0.36144	0.474
		ECTATIC	NORMAL	0.36508	0.38102	1
			STENOTIC	-0.51447	0.36144	0.474
URIC ACID	LSD	NORMAL	STENOTIC	66.9917*	33.2452	0.047
			ECTATIC	16.2917	27.8641	0.56
		STENOTIC	NORMAL	-66.9917*	33.2452	0.047
			ECTATIC	-50.7	29.6123	0.091
	Bonferroni	ECTATIC	NORMAL	-16.2917	27.8641	0.56
			STENOTIC	50.7	29.6123	0.091
		NORMAL	STENOTIC	66.9917	33.2452	0.141
			ECTATIC	16.2917	27.8641	1
		STENOTIC	NORMAL	-66.9917	33.2452	0.141
			ECTATIC	-50.7	29.6123	0.272
		ECTATIC	NORMAL	-16.2917	27.8641	1
			STENOTIC	50.7	29.6123	0.272
TROPONIN I	LSD	NORMAL	STENOTIC	-17.3811190*	5.8365777	0.004
			ECTATIC	-13.5243889*	5.6386698	0.019
		STENOTIC	NORMAL	17.3811190*	5.8365777	0.004
			ECTATIC	3.8567302	4.2624337	0.369
	Bonferroni	ECTATIC	NORMAL	13.5243889*	5.6386698	0.019
			STENOTIC	-3.8567302	4.2624337	0.369
		NORMAL	STENOTIC	-17.3811190*	5.8365777	0.012
			ECTATIC	-13.524389	5.6386698	0.057
		STENOTIC	NORMAL	17.3811190*	5.8365777	0.012
			ECTATIC	3.8567302	4.2624337	1
		ECTATIC	NORMAL	13.524389	5.6386698	0.057
			STENOTIC	-3.8567302	4.2624337	1
CPK	LSD	NORMAL	STENOTIC	-1918.7370*	781.0546	0.016
			ECTATIC	-344.3892	696.1642	0.622
		STENOTIC	NORMAL	1918.7370*	781.0546	0.016
			ECTATIC	1574.3478*	672.7086	0.021
	Bonferroni	ECTATIC	NORMAL	344.3892	696.1642	0.622
			STENOTIC	-1574.3478*	672.7086	0.021
		NORMAL	STENOTIC	-1918.7370*	781.0546	0.047
			ECTATIC	-344.3892	696.1642	1
		STENOTIC	NORMAL	1918.7370*	781.0546	0.047
			ECTATIC	1574.3478	672.7086	0.063
		ECTATIC	NORMAL	344.3892	696.1642	1
			STENOTIC	-1574.3478	672.7086	0.063
LDH	LSD	NORMAL	STENOTIC	-157.1145*	59.8545	0.01
			ECTATIC	-94.7843	52.8924	0.076
		STENOTIC	NORMAL	157.1145*	59.8545	0.01
			ECTATIC	62.3302	50.6846	0.222
	Bonferroni	ECTATIC	NORMAL	94.7843	52.8924	0.076
			STENOTIC	-62.3302	50.6846	0.222
		NORMAL	STENOTIC	-157.1145*	59.8545	0.03
			ECTATIC	-94.7843	52.8924	0.229
		STENOTIC	NORMAL	157.1145*	59.8545	0.03
			ECTATIC	62.3302	50.6846	0.666
		ECTATIC	NORMAL	94.7843	52.8924	0.229
			STENOTIC	-62.3302	50.6846	0.666

Multiple variable comparison tests in different patient groups and predictors of coronary artery ectasia (significant differences highlighted in green, CPK = creatine phosphokinase, LDH = lactate dehydrogenase)

se tip 3 u svim navedenim parametrima. Vrijednosti troponina, CRP, CPK, CK-MB, LDH više su kod bolesnika s ektatičnim i stenotičnim u odnosu na bolesnike s normalnim krvnim žilama. Postoje značajne razlike u vrijednosti troponina između bolesnika s normalnim i ektatičnim krvnim žilama, zatim u vrijednostima kolesterola, mokraćne kiseline, troponina, CPK i LDH između bolesnika s normalnim i stenozirajućim krvnim žilama i na posljedku u vrijednosti CPK između bolesnika s ektatičnim i stenozirajućim krvnim žilama (**tablica 2**). Postoje statistički značajne razlike između CRP-a i podtipova ektatičnih krvnih žila (**tablica 3**).

ZAKLJUČAK: U rezultatima svi ispitivani prediktori, osim alkohola, potvrđeni su kao mogući uzrok nastanka ektazija.

ent types of arteries (**Table 1**). In subtypes of ectasia highlights the type 3 in all these parameters. The values of troponin, CRP, CPK, CK-MB, LDH were higher in patients with coronary ectasia and stenotic arteries compared to patients with normal arteries. There are significant differences in the value of troponin in patients with normal arteries and coronary ectasia, then the values of cholesterol, uric acid, troponin, CPK and LDH in patients with normal and stenotic arteries, and finally in CPK levels between patients with coronary ectasia and stenotic arteries (**Table 2**). There are significant differences between CRP levels and types of arteries (**Table 3**).

CONCLUSIONS: The results of all tested predictors, except alcohol, were confirmed as a possible cause of ectasia.

TABLE 3.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
CRP	Between groups	18955.987	3	6318.662	4.214	.016
	Within groups	34487.560	23	1499.459		
	Total	53443.547	26			

ANOVA test between patient groups with different type of coronary artery ectasia and levels of C reactive protein (CRP), significant differences highlighted in green.

LITERATURE

1. Sorrell VL, Davis MJ, Bove AA. Current knowledge and significance of coronary artery ectasia: a chronologic review of the literature, recommendations for treatment, possible etiologies, and future considerations. *Clin Cardiol*. 1998;21(3):157-60.
2. LI Jianjun editor. Inflammation in coronary artery diseases [Internet]. Peking: Chinese Academy of Medical Sciences; 2012 [cited 2014 May 12]. Available from: <http://www.paper.edu.cn.org/>.
3. Finkelstein A, Michowitz Y, Abashidze A, Miller H, Keren G, George J. Temporal association between circulating proteolysin, inflammatory and neurohormonal markers in patients with coronary ectasia. *Atherosclerosis*. 2005;179:353-9.