CRT-100.10

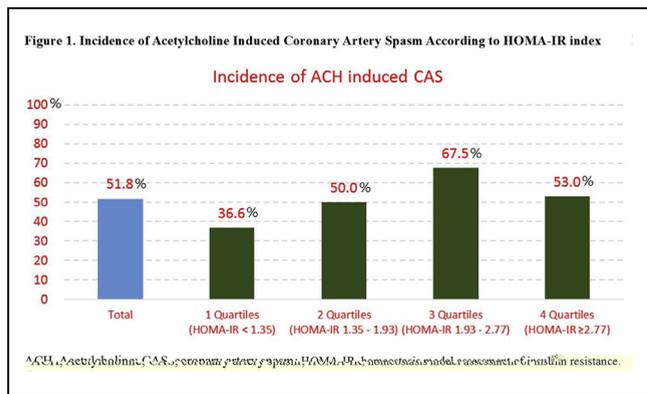## Impact of Insulin Resistance on Acetylcholine-Induced Coronary Artery Spasm in Non-diabetic Patients

Seung-Woon Rha, Byoung Geol Choi, Jae Kyeong Byun, Min Suk Shim, Se Yeon Choi, Jun Hyuk Kang, Woo Hyeun Kim, Sung Hun Park, Eun Jin Park, Jah Yeon Choi, Sunki Lee, Hu Li, Jin Oh Na, Cheol Ung Choi, Hong Euy Lim, Jin Won Kim, Eung Ju Kim, Chang Gyu Park, Hong Seog Seo, Dong Joo Oh
Cardiovascular Center, Korea University Guro Hospital, Seoul, Republic of Korea

BACKGROUND Coronary artery spasm (CAS) is a well-known endothelial dysfunction, which can induce acute coronary syndrome (ACS) or vasospastic angina (VSA). Impaired glycemic control is risk factor for cardiovascular disease. In this study, we evaluated the impact of insulin resistance on CAS in patients without Diabetes mellitus (DM) using intracoronary Ach provocation test.

METHODS A total of 330 eligible patients without significant CAD and DM who underwent acetylcholine (Ach) provocation test were enrolled for the study. Significant CAS was defined as having $\geq$70% narrowing of the artery after incremental injections of 20, 50 and 100 μg of Ach into the left coronary artery. Homeostasis model assessment of insulin resistance (HOMA-IR) index were calculated before undergoing Ach provocation test. Patients were divided into quartile groups: Q1 (n=82; HOMA-IR < 1.35), Q2 (n=82; 1.35$\leq$ HOMA-IR< 1.93), Q3 (n=83; 1.93$\leq$ HOMA-IR< 2.73) and Q4 (n=83; HOMA-IR $\geq$ 2.73).

RESULTS There were considerable differences in baseline characteristics such as age, sex (male), body mass index, glycemic control (hemoglobin A1c) and level of lipid profile (total cholesterol, triglyceride) among the quartile groups. Also, there were significant differences in angiographic and clinical outcomes at ACH provocation test among the quartile groups. The higher HOMA-IR groups (Q3, Q4) showed a higher trend of CAS than the lower HOMA-IR group (Q1) [Figure 1]. After baseline adjustment analysis, a risk of CAS increased in Q3 (HR: 3.55, 95% CI: 1.79 - 7.03, p< 0.01) and Q4 (HR: 2.12, 95% CI: 1.07 - 2.41, p< 0.01) than Q1.

CONCLUSION Higher insulin resistance is a strong independent predictor of CAS by Ach provocation test in non-diabetic patients who are suspected of having VSA. Our findings suggest that insulin resistance might effect endothelial dysfunction in non-diabetic subjects.

Figure 1. Incidence of Acetylcholine Induced Coronary Artery Spasm According to HOMA-IR index

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Impact of Alcohol Drinking on Acetylcholine-Induced Coronary Artery Spasm

Seung-Woon Rha, Byoung Geol Choi, Jae Kyeong Byun, Min Suk Shim, Se Yeon Choi, Jun Hyuk Kang, Woo Hyeun Kang, Sung Hun Park, Eun Jin Park, Jah Yeon Choi, Sunki Lee, Hu Li, Jin Oh Na, Cheol Ung Choi, Hong Euy Lim, Jin Won Kim, Eung Ju Kim, Chang Gyu Park, Hong Seog Seo, Dong Joo Oh
Cardiovascular Center, Korea University Guro Hospital, Seoul, Republic of Korea

BACKGROUND Coronary artery spasm (CAS) refers to an abnormal condition where the epicardial coronary artery contracts. The relationship between alcohol consumption and CAS is even more ambiguous. Therefore, we evaluated drinking patterns such as current drinking status, weekly drinking amount, and drinking frequency on CAS and their varying effects.

METHODS A total of 5,491 patients without significant CAD underwent acetylcholine (Ach) provocation test between November 2004 and May 2014. Significant CAS was defined as having $\geq$70% narrowing of the artery after incremental injections of 20, 50 and 100 μg of Ach into the left coronary artery. Based on data from Korea Health Promotion Foundation (KHPF), men who drank less than 40g/day and women who drank less than 20g/day were considered as low risk drinkers in the CA group. Patients were divided into two groups according to alcohol consumption. The current alcohol drinking group (CA; n= 1792) and the non-alcohol drinking group (non-CA; n=3699). To adjust potential confounders, a propensity score matching (PSM) analysis was performed using the logistic regression model.

RESULTS After PSM, baseline characteristics of both groups were balanced. After PSM analysis, 2 propensity-matched groups (1,391 pairs, n = 2,782) were generated. The CA group showed a higher incidence of CAS by Ach provocation test than the non-CA group (62.6 % vs. 58.2%, HR; 1.20, 95% C.I; 1.03-1.40, p=0.016). Among these patients, high risk drinkers (HR; 1.54, 95% C.I; 1.17-2.01, p=0.002) showed a higher risk of CAS than the non-CAS group.

CONCLUSION Current alcohol drinkers and heavy consumption exhibited a higher incidence of CAS compared with the non-alcohol drinkers. Abstinence from drinking paired with intensive medical therapy and close clinical follow-up can help to prevent CAS.

Table. Predictors for Acetylcholine induced Coronary Artery Spasm by Univariate Cox-Regression Analysis

Variables	Entire Patients No. of CAS patients	Hazard ratio [95% C.I]	p Value	Matched Patients No. of CAS patients	Hazard ratio [95% C.I]
Current alcohol drinkers	1111/1792	1.38 [1.23 - 1.55]	< 0.01	871/1391	1.20 [1.03 - 1.40]
Alcohol drinking amount			< 0.01		
Non-CA	1999/3699	-		809/1391	-
Low risk	79/133	1.24 [0.87 - 1.76]	0.224	69/120	0.97 [0.66 - 1.41]
High risk	249/387	1.53 [1.23 - 1.90]	< 0.01	197/289	1.54 [1.17 - 2.01]
Unknown risk	783/1272	1.36 [1.19 - 1.55]	< 0.01	605/982	1.15 [0.97 - 1.36]

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Temporal Changes in the Management of Acute Coronary Syndromes Over The Years, Egyptian Experience

Hesham M. Bahaaeldin,[1] Waleed Ammar,[2] Ahmed Magdy,[1] Soliman Ghareeb[2]
[1]National Heart Institute, Giza, Egypt; [2]Cairo University, Cairo, Egypt

INTRODUCTION The change that is happening in the world concerning the management of ACS, is focusing on the speed of service, i.e DTB, DTN, FMC etc. The data provided in the guidelines are from developed countries. Our study focused on the evolution of the standards of care in Egypt representing the Middle East and north Africa.

OBJECTIVE To delineate the evolution in the characteristics, treatments, and outcomes of patients with (ACS), by comparing current registry with those of previous local registries.

METHODS The study was performed in the National Heart Institute and Kasr Einy hospitals, including a total of 1807 ACS patients. 606 patients were collected prospectively (G3) and compared with 1201 patients collected retrospectively from previous national registries performed in the NHI from 2007(G1) and 2010 (G2). Data of all patients included: History taking, clinical examination, ECG, echo, reperfusion modality adjunctive medical treatment and whether coronary angiography+/- PCI was done or not; outcome and in hospital mortality.

RESULT The percentage of STEMI increased among those presenting with ACS. (from 59% in G1 vs. 63% in G2 to almost 74% in G3)P<0.001. The mean ages were 54.5 +/- 11.8 G1, 56.9 +/- 10.6 in G2, and 54.3 +/- 10.9 in G3. Significant drop in mean age occurred G2 vs. G3 (P=0.001). Gender distribution hasn't change significantly. Smoking and diabetes increased with no statistical significance. Patients with previous PCI increased significantly 5% in G1 5.6% in G2 reaching 12% in G3 (P=0.001). Coronary Angiography increased from 40 % in G1 to 52% in G3(P<0.001) . PCI was done to 48.3 % of admitted patients of G3 vs. 22% in G2 (P<0.001) and 26% in G1(P<0.001). Primary PCI has increased significantly 12.36% G1(P=0.001), 13% G2(P=0.001) , and almost 40% G3. Door to needle (DTN) and door to balloon (DTB) showed no statistical difference. DTN 20 +/- 8 min G1 vs 21.5 +/- 7.3 minutes (P=0.105), while DTB 102 +/- 10.9 min G1 vs. 101.5 +/- 26.6 min (P=0.86). Overall complications have decreased significantly. Mortality has improved, 4.24% G1 vs. 2.5% in G3 (P=0.044).

CONCLUSION Mean age, smoking, hypertension, and diabetes haven't change significantly over many years. This finding necessitates the formulation of programs to increase patients' awareness, and