Title:

中文：

青少年的變異性狹心症合併暫時性的心電圖 ST-T 段上升及 Troponin-I 的升高: 一個個案對照法的研究報告

英文：

Variant angina with transient Troponin-I elevation and reversible ST-T abnormality of ECG in adolescent patients: A case-control study

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Background:

Most cases of acute chest pain urging adolescents to visit emergent department (ED) are benign. However, chest pain due to variant angina (VA, also known as Prinzmetal angina, 1957) is distressful to the patients and family and makes pediatrician in ER alert. In adults, VA is considered a transient status of coronary arterial spasm, not related to exercise, but carries some risk of life. However, for adolescent VA, there have been only sporadic case reports. In this research we intend to explore the clinical characteristics of these VA patients with a case-&-control study.

Material and Method:

Through Jan. 1, 2008 to Jun. 30, 2014, we collected 9 cases of adolescent VA that admitted to the China Medical University Hospital via pediatric ED. The diagnosis of VA is defined as acute chest pain associated with elevations of Troponin-I level and ST segments of EKG for a few days, while echocardiograms reveal normal cardiac function without significant pericardial effusion. The control group consists of chest pain patients visiting our ED during the same period and presented only with non-specific respiratory, gastrointestinal and general systemic symptoms. Accordingly, cases with well-defined chronic illness, previous relevant surgeries or any apparent organ impairments were excluded. Only 28 patients remained as controls. The demographic data, past history of allergy, preceding medications, laboratory data and image studies were compared between these 2 groups.

Result:

VA patients showed male preponderance (8/9 vs. 8/20, $p = 0.002$), older (15.2± 2.2 yr vs. 10.7±4.7, $p = 0.015$), and higher in body mass index (BMI, 23.4±3.5 vs. 18.7±4.2, $p = 0.02$) than that of controls. All VA patients can localize their areas of chest pain, while only 6/28 controls can ($p < 0.001$). Troponin-I was remarkably elevated in VA patients at ED (4.5±5.3), reaching its peak around 36 hours after admission (7.4±2.4), and returned to normal at 3rd to 5th day of hospitalization. This pattern of rise-&-fall was in consistent with that of CK-MB levels (11.7±11.0) and ST segment elevations in ECG. The controls presented normal levels in all of these parameters. Echocardiographical studies showed normal LV contractility (EF > 60%) in all VA patients. Only one patient presented with mild pericardial effusion (5.0 mm). Th-201 myocardial scan with persantin challenge revealed areas of perfusion defect in every VA patients, while selective coronary angiograms performed in 5 patients did not observe any segment of stenosis.

Discussion:

Male preponderance, higher BMI, able to localize chest pain, and a typical pattern of rise-&-fall in ST segments of ECG and serum levels of Troponin-I distinctly differentiate these 9 VA adolescent patients from the 28 chest pain controls. No significant pericardial effusion, no friction rub sound, only low grade fever, do not require NSAID therapy, and no cases of recurrence tell their difference from other cases series of acute pericarditis.

Case enrollment: Acute chest pain visiting Pediatric ED
Myocardial ischemia was suspected and had Troponin-I study at ER

Case exclusion: 1.Surgery or severe trauma related
2.PHx of Myocarditis, Kawasaki disease, Dilated cardiomyopathy, Tracheostomy,
3.Cases with chronic disease, eg. Renal failure, ALL,
4.apparent organ lesions, eg. acute myositis, pneumothorax, caries, facial cellulitis, UGI bleeding, depressive disorder, Herpes zoster infection on face,
5.Definite diagnosis: eg. PSVT, Af/AF,