

that most of the patients (43.03%) had single vessel disease, while 27.85% had double vessel disease and 29.12% had triple vessel disease (TVD).

TVD was significantly higher among diabetics ($p=0.007$), smokers ($p=0.043$) and those accustomed to fast food ($p=0.048$).

CONCLUSION Bangladeshi expatriates living in the ME present with CAD at a relatively early age, with clustering of risk factors for CAD, particularly diabetes, hypertension, dyslipidemia, and smoking. Furthermore, poor dietary habits and stressful lifestyles with deprivation of healthy family lives could be additional contributing factors to this early onset and increased severity of CAD. This is evident by the finding of significantly greater incidence of TVD among diabetics, smokers and those with the high-calorie intake. Although it is difficult to draw conclusions as to whether this subset of the population was more prone to risk due to their work in the ME, the detection of risk factors such as diabetes and hypertension only after their migration to the ME suggest that unhealthy lifestyle changes might influence the early onset of CAD. Interventions to control hypertension and dyslipidemia, and to reduce the risk of developing diabetes is a primary clinical priority in this population. Dietary and lifestyle improvements are effective at reducing the number of cardiovascular risk factors simultaneously, however, cultural and environmental barriers, including lower socioeconomic conditions and poor educational status might render this difficult.

There is also a need for more detailed data on the epidemiology of CAD among Bangladeshi workers in the ME, particularly related to risk factor status prior to their migration.

TCTAP A-120

A 4-year City Based Multicenter Trial to Improve the Ratio of Ambulance Use in Patients After ST Elevation Myocardial Infarction



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BACKGROUND Ambulance plays an important role in early recognition and treatment of ST-elevation myocardial infarction (STEMI). Ambulance transfer has several advantages, including experienced ambulance technicians, use of an automated external defibrillator and pre-hospital electrocardiogram. However, previous studies showed that the patients with STEMI symptoms often fail to call an ambulance as recommended. This 4-year study aimed to improve the ratio of ambulance use of patients with ST-elevation myocardial infarction in Kaohsiung city, Taiwan.

METHODS A multidisciplinary team among Kaohsiung Veterans General hospital, fire bureau and department of health, Kaohsiung city government was organized since October 2012. All patients with STEMI in Kaohsiung city were enrolled from January 2012 to December 2015. The ratio of ambulance use is defined as STEMI patients received ambulance transfer in Kaohsiung city. The key interventions include establishing STEMI mnemonic phrase, filming STEMI advertisement video, using internet, broadcast and television media and press conference, producing promotional materials and STEMI promotional activities. A P -value < 0.05 was considered statistically significant.

RESULTS The total 3,802 STEMI patients were enrolled in this study. These patients were divided into pre-interventional phase ($N=972$, January to December 2012), interventional phase ($N=979$, January to December 2013) and post-interventional phase ($N=1,928$, January 2014 to December 2015). The ratio of ambulance use of patients with STEMI increased from 12% in pre-interventional phase to 13% in interventional phase and further to 19% in post-interventional phase ($p < 0.05$).

CONCLUSION This 4-year city based multicenter trial demonstrates continuous quality improvement method can improve the ratio of ambulance use of patients with ST-elevation myocardial infarction in Kaohsiung city, Taiwan.

OTHERS (TCTAP A-121 TO TCTAP A-122)

TCTAP A-121

Metformin Attenuates High Glucose Injury by Inducing Mitophagy Through AMPK/FUNDC1 Signal Pathway in H9c2 Cells



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BACKGROUND Mitochondrial fragmentation plays an important role in the progression of diabetic cardiomyopathy. Metformin has protective in diabetes-related cardiovascular endpoints when compared with conventional therapies. Mitophagy mediates the selective recognition and targeting of damaged mitochondria by autophagosomes. However, the involvement of mitophagy in metformin-elicited cardioprotection remains unknown.

METHODS In the present study, H9c2 cardiomyocytes subjected to high glucose was treatment with metformin. Mitophagy marker FUNDC1 was examined using western blot and confocal fluorescence microscopy. JC-1 and DCFH-DA fluorescence staining were used to detect mitochondrial membrane potential and reactive oxygen species (ROS).

RESULTS We found that high glucose treated cells exhibited reduced levels of FUNDC1, accompanied with decreased autophagy flux (reduced LC3-II/LC3-I and increased p62). Conversely, metformin increased FUNDC1 enhanced autophagy proteins. Confocal imaging of lysotracker red-labeled lysosome and mitotracker green-labeled mitochondria further confirmed metformin increased the mitophagy which was reversed by FUNDC1 siRNA and AMPK siRNA, suggesting metformin could induce FUNDC1 mediated mitophagy by activating AMPK. Furthermore, FUNDC1 siRNA attenuated the protective effects of metformin manifesting as aggravated mitochondrial morphology disruption, ATP and membrane potential depletion, increased ROS overproduction, and apoptosis.

CONCLUSION Taken together, metformin promoted expression of FUNDC1 to stimulate cytoprotective mitophagy via AMPK pathway, which may provide beneficial targets in the preservation of cardiac homeostasis against high glucose injury.

TCTAP A-122

A Case of Pericardial Constriction Presenting with Atrial Fibrillation



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BACKGROUND A 61-year-old lady with a medical history of hypertension and hyperlipidemia, presented with recurrent palpitation for 3 weeks. The palpitations were sudden in onset and gradual in offset.

METHODS Her electrocardiogram (ECG) showed paroxysmal atrial fibrillation. Her 2D echocardiogram showed abnormally small right ventricular (RV) cavity size with extracardiac compression of RV, normal RV global systolic function (Figure 1). Stress echocardiogram was negative for inducible ischemia at low workload. CT thorax with contrast showed no mediastinal or pulmonary mass detected. Discontinuous pericardial calcification was identified (Figure 2).

2D Echocardiogram



Figure 1: 2D echocardiogram shows abnormally small right ventricular (RV) cavity size with extracardiac compression of RV.