

## *Editorial*

### **Chest Pain Clinic II**

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Chest pain is an illusive symptom, it can strike at any time, and may affect any age. It is a common complaint, which frightens the patient and compels him to seek treatment or an advice from the emergency department or clinic. All the hospitals on the island can afford and they should have chest pain clinic; unfortunately only one hospital have chest pain clinic. Chest pain does not distinguish between rich or poor, black or white, religious affiliations or gender. The clinic performs vital tests that distinguish chest pain due to cardiac ailment from other conditions. Many times when the diagnosis is heart condition, which caused the pain, chest pain clinic, is life saving. Chest pain could be of recent-onset, increasing chest pain, chest pain at rest, or other chest pain of concern<sup>1</sup> – only chest pain clinic or cardiology service would be able to distinguish between these, it is not a GP or traumatologist.

Chest pain does not always signal heart attack, but it could be caused by a condition as serious as heart attack and it is important to investigate and rule out the heart ailment from others, as it is the greatest threat to life. Other life threatening conditions that might cause chest pain are pulmonary embolism, aortic dissection or pneumothorax; these conditions could be ruled out by further investigations. Family physicians and general practitioners should be encouraged to refer patients to chest pain clinic if warranted. Patients as well should be encouraged to seek help from chest pain clinic if they are concerned.

Chest pain could be caused by mild conditions, such as, tension, exhaustion, reflux esophagitis or muscular pain; that is why chest pain clinic is very important to distinguish between serious condition and mild one. Chest pain clinic performs a very vital function by making distinction between heart condition and others. Many times, the chest pain clinic is life saving and in other conditions it is cost saving.

Chest pain can strike at any time, in the middle of the night, while your are shopping in the Seef Mall or while you are enjoying yourself at the beach. A Bahraini former Minister who was innovative and had contributed great deal to the progress of cultural activities in Bahrain had a heart attack and died while he was on holiday. Chest pain is very frightening experience for those who suffered heart attack except for those who are not afraid of death. Patients need to be reassured, and their fear of immediate death needs to be allayed by explaining to them the cause of pain and the possible treatment and its outcome. In chest pain clinic, it is important to recognize early symptoms and signs of myocardial infarction, which are usually unrecognized. It is called 'pre-infarction angina' and it is seen in the preceding few weeks to infarction. If these are recognized and subjected to appropriate investigation and treatment, reductions in mortality might follow<sup>1</sup>. There can be little doubt that anxiety contributes to chest pain (even in patients with coronary disease) and if anxiety is reduced, improvements in chest pain can follow<sup>2</sup>. In a study by Davie et al, they found that their major success was that a large number of patients were seen, diagnosed as non-coronary chest pain and allowed home with reassurance rather than being admitted. In the same study, the patients were categorized as 'acute coronary syndrome', 'stable coronary artery disease' or 'non-coronary chest pain'<sup>1</sup>.

Heart attack does not discriminate. Even if you are very rich or powerful, you could have heart attack at any time. Chest pain clinic is needed by the rich, the powerful, the poor and all ethnic groups. A powerful leader of a country had heart attack and died in the emergency room of a hospital, which does not have a chest pain clinic; he could have been saved.

No age is exempted from heart attack. It used to be a phenomenon after the age of 50; but now it can be seen at much younger age and it could be seen in adolescent. Recently, in Bahrain, one adolescent, aged sixteen had a heart attack and expired while he was playing football and another one while he was at home. A newspaper in Bahrain wrote about a woman aged sixty years who died because her chest pain was mishandled in one of the emergency rooms on the island – that hospital had no chest pain clinic.

There is no excuse for any hospital on the island not to establish chest pain clinic. The equipment and staffing are not expensive and the job they do is vital. It is not fair for the patient and for the traumatologist to be dealing with chest pain. A country, which can afford to build 'a formula one' race-course should be able to build many chest pain clinics.

What is needed to establish a chest pain clinic?

First and foremost is the will to establish such clinic, the equipments needed are: ECG especially 12-lead ECG, stress test (using treadmill exercise electrocardiography or medications that stimulate the heart). Stress test may be combined with echocardiography and nuclear scan. Chest pain clinic must be equipped with the facility to evaluate cardiac enzymes rather than to depend on a general laboratory. The following investigations are supposed to be preferably done in chest pain clinic: serial cardiac enzymes, ideally CK-MB, troponin T or troponin I, myoglobin, serial creatine kinase (CK), aspartate transaminase (AST), lactate dehydrogenase (LDH), taken over 24 hours. Other investigations must be available in the hospital or in a nearby center for further evaluation of patients who proved to be or highly suspected to have cardiac reason for the chest pain. These investigations include coronary catheterization, MRI, and electron beam computerized tomography (EBCT) or ultrafast CT scan, which measures Coronary artery calcium (CAC) which is present in only atherosclerotic arteries and is a measure of subclinical coronary heart disease (CHD). Electron-beam tomography (EBT) is sensitive enough to detect and quantify small amounts of CAC. EBT-derived CAC scores are directly associated with the number and severity of diseased vessels defined by quantitative coronary angiography; CAC was found to be a significant predictor of both hard and all CHD events<sup>1</sup>. Careful evaluation by an expert team of cardiologist, cardiology nurse and cardiology technician in a well-equipped chest pain clinic usually can distinguish between cardiac and non-cardiac chest pain. It is money well spent on equipments and staff training well invested as it is lifesaver.

In a study by Pottle of four hundred and fifty-four patients who were seen in the chest pain clinic from January 2001-December 2003. Three hundred and twenty-four patients (71.4%) underwent exercise testing of which 54 (16.7%) had a positive result. One hundred and thirteen patients (24.9%) were referred for angiography. Of these, 75 (66.4%) had coronary heart disease. Thirty-three patients (29.2%) have undergone percutaneous coronary intervention (PCI) and 19 (16.8%) have required coronary artery bypass grafting (CABG). Twenty-three patients (20.4%) were treated medically<sup>5</sup>. The previous study and many other studies proved the value of having chest pain clinics and in saving lives<sup>4,5,6</sup>.

Byrne et al categorized chest pain of cardiac origin into: (1) "low risk/non-coronary chest pain" (patients felt to have atypical symptoms, a small probability of coronary heart disease and "low risk" test results), (2) "stable coronary artery disease" (patients thought to have coronary heart disease but felt to be clinically stable and not at high risk of early adverse outcome), and (3) "acute coronary syndromes" (patients in whom immediate hospitalization was advised). The latter group included patients with crescendo angina, angina at rest, or suspected acute myocardial infarct<sup>8</sup>.

It is commendable to have chest pain clinic in the cardiac centre of Mohammed Bin Khalifa Bin Salman Al Khalifa; but it is not an excuse for other hospitals not to establish one. The management of patients with chest pain in Bahrain has many shortcomings, only one chest pain clinic is available on the island while the major public hospital, Salmaniya Medical Center (SMC), does not have one and of course the other private hospitals. Many admissions in SMC are due to chest pain. These admissions could be avoided by proper assessment in chest pain clinic, which would reduce the bed occupancy in the hospital – let alone reducing the cost.

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