Acute Myocardial Infarction: When to Suspect It and What to do?

BACKGROUND

Acute myocardial infarction (AMI) is the leading cause of death in both men and women. The average age of disease onset is 60 years in men and 70 years in women. The so-called coronary risk factors: smoking, hypertension, high cholesterol, diabetes mellitus, stress, and sedentarism may contribute to its early onset. The myocardium, the heart muscle, is fed through three coronary arteries whose diameter is smaller than 4 mm. A sudden obstruction of one of these coronary arteries leads to AMI, i.e. death of a part of the cardiac muscle. Sudden obstruction is typically caused by a thrombus (blood clot) that is produced in response to the rupture of an atherosclerotic plaque. Plaques are lesions within the coronary arteries, caused by multiple risk factors that lead to cholesterol deposits and to other modifications which gradually obstruct the coronary vessels. (Figure 1A).

SYMPTOMS

Most patients complain of tightness in the center of the chest (angina), but the discomfort may spread from the jaw to the pit of the stomach. It may present in one area or radiate to the back, neck, shoulder or either the left or right arm. The discomfort intensity varies. In some cases the pain is very intense and in others so well tolerated that it may not be attributed to the heart. In women and elderly subjects the pain may be less specific or atypical than in men. It is very common to associate AMI with cold sweats, nausea, vomiting and pain in the upper abdomen that may lead to diagnostic confusion (gastrointestinal disease); others may have palpitations, dizziness, shortness of breath (dyspnea) and even fainting or loss of consciousness.

DIAGNOSIS

The electrocardiogram is the most simple and useful tool nowadays. It is possible to make an accurate diagnosis and to establish the type of treatment (it must be performed by a physician trained in this pathology).

A blood test is also useful, because the damaged heart muscle releases a number of substances into the blood that can be measured; however, it is not used for initial treatment because these substances increase later. (hours)

PROGNOSIS

The mortality of patients admitted with AMI is high, about 10%. The prognosis depends on several factors, but two in particular: 1) the magnitude of muscle damage and 2) the patient´s promptness to seek medical help and the time it takes to diagnose and open the occluded coronary artery.

TREATMENT

The first treatment is to chew an aspirin and contact the emergency medical team, as many patients may have a serious life-threatening arrhythmia that may be corrected with ventricular defibrillation (electric shock). At present there are many public places with automated defibrillators.

The most important treatment is to open the occluded artery, which may be achieved with intravenous drugs that dissolve the clot, called thrombolytic drugs, or through coronary angioplasty with stent placement (Figure 1B). It will all depend on the characteristics of the disease, its precocity and the speed with which treatment can be applied at the medical center.

CONCLUSIONS

Myocardial infarction is a serious life-threatening disease, but at present, therapeutic tools have dramatically improved the prognosis. Everything depends on promptly consulting the medical emergency to be treated by a qualified team.

WHEN TO SUSPECT IT AND WHAT TO DO?

In case you present with the described symptoms call medical emergency immediately, alerting them on the possibility you are undergoing an acute myocardial infarction. Contact your closest relative and chew an aspirin. If you have a history of coronary disease place an isosorbide dinitrate 5 mg tablet under the tongue (prescribed by your doctor).

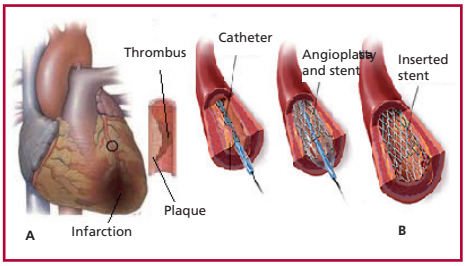

Fig. 1. A. Infarcted heart and occluded coronary artery. **B.** Coronary angioplasty.

Author: Dr. Carlos D. Tajer
Hospital El Cruce/Instituto Alexander Fleming
Editor: Dr. Adrian Charask
Coronary Care Unit, Clínica Bazterrica/Clínica Santa Isabel

INFORMATION YOU MAY FIND IN THE WEB

- Argentina Society of Cardiology (Consensus Area): http://www.sac.org.ar/consensos
- Mariani J, De Abreu M, Tajer CD, on behalf of the Acute Coronary Syndromes Care Network investigators. Times and use of reperfusion therapy in a health care network system. Rev Argent Cardiol 2013, 81: 215-221. http.dx.doi.org/10.7775/rac.v81.i3.1337
- www.cardiosmart.org/MI-CORAZON?sc_lang=es-US

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Rev Argent Cardiol 2013;81:274. http://dx.doi.org/10.7775/rac.v81.i3.2622
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