

## 27. HIV-ASSOCIATED CARDIOMYOPATHY

### 27.1 Introduction

Cardiac disease has been reported in patients with AIDS based on clinical, echocardiographic and autopsy findings. While abnormalities are often clinically silent, patients have developed pericarditis, congestive heart failure, cardiomyopathy, focal myocarditis, abnormal wall motion, pericardial effusions and cardiac tamponade. Cardiac abnormalities may be caused by primary HIV infection of the myocardium, by superinfections or by the sequelae of drug therapy, substance abuse, renal impairment, or pulmonary disease. Pathogens such as CMV, toxoplasmosis, candida, EBV, and coccidioides have been discovered to affect the myocardium.

HIV-related cardiomyopathy is characterized by left ventricular dilatation and hypocontractility, which may result in heart failure and pulmonary congestion. Clinical cardiomyopathy is seen in 1-4% of AIDS patients.

### 27.2 Clinical aspects

The patient complains of difficulty breathing, swelling of the legs, or chest pain at mid-sternum. Frequently patients are asymptomatic. In the history, note the presence of previous cardiovascular disease, hypertension and medications that the patient is taking. Note also that some nucleoside reverse transcriptase inhibitors cause mitochondrial toxicity that can lead to myocardial failure. Substance abuse, especially cocaine, injecting drug use or alcoholism can lead to myocardial disease. Other cardiotoxic medications are adriamycin and foscarnet.

On physical examination check for pulsus paradoxus as well as signs compatible with congestive heart failure such as raised jugular venous pressure, displaced apex, palpable pulsatile liver, crepitations in the chest and leg oedema. Poor quality heart sounds, loss or displacement of apex beat, tricuspid or mitral valve murmurs (related to valvular insufficiency), are early signs. Late signs include: signs of pulmonary congestion; peripheral oedema.

In the differential diagnosis, always consider pericardial effusion (most common aetiology is TB or MAC), pericardial lymphoma or KS, other viral

myocarditis and hypertensive cardiomyopathy. If there is evidence of cardiac tamponade, the patient will need a pericardial tap. Refer the patient for expert opinion.

Investigations that need to be performed include:

- Chest x-ray PA and lateral CXR - this may show a globular, enlarged heart, evidence of pericardial effusion or pulmonary oedema.
- ECG which may show non-specific T wave and ST segment changes
- Echocardiography is useful in determining the cause and type of heart failure, the ejection fraction and to rule out pericardial effusion.

Pericardiocentesis is necessary for large effusions or tamponade (or for any effusion accompanying clinical pericarditis with pain and fever). Fluid should be sent for chemistry, microscopy and culture and stained and cultured for microbiologic entities, including AFB. Fluid should also be examined for neoplastic cells.

### **27.3 Management**

- The patient should rest in bed and should be nursed in the cardiac position.
- Diuretics should be given e.g frusemide 40 - 80mg daily. You need to get a diuresis and hence may need to keep increasing the doses of the Frusemide.
- Afterload reduction with ACE inhibitors should be commenced for clinical congestive cardiac failure and reduced systolic blood pressure (**Note:** if there is good left ventricular function with diastolic dysfunction, avoid ACE inhibitors and afterload reducers and instead use nitrates, diuretics, beta blockers or calcium channel blockers.
- If patient is not on ART, this should be commenced as it may be helpful to the patient's condition.

- Low salt diet: schedule with dietician for instruction.
- Consider discontinuation of all unnecessary drugs, especially nucleosides (ddI or ZDV) for 4 weeks; and repeat ECHO in 2 weeks - if these drugs are the cause, the condition is usually improved.
- Consider digitalis if ejection fraction is very low (< 25%).
- Commence anticoagulants prophylactically
- Monitor electrolytes biweekly for 2 months after starting diuretics; then monthly after stabilization.

**Give the patient the following advice:**

- Reduce stress, take appropriate rest, and maintain adequate nutritional intake.
- The diuretics prescribed to you will make you urinate more often. Keep legs elevated and wear elastic pantyhose to decrease swelling in the legs and feet.
- Avoid alcohol, cocaine, and other drugs, which can greatly worsen your heart's function.