

ACUTE MYOCARDITIS at a glance



Acute myocarditis might be caused by many infections (bacterial, viral , fungal) infections , but the most common and important cause in practice is ↴↴↴↴↴↴

VIRAL MYOCARDITIS

Particularly caused by COXSACKIE VIRUS

- COVID-19 induced myocarditis becomes a concern nowadays after the emergence of COVID-19 pandemic!!

المريض بيشتكى من ايه !؟



Clinical picture of myocarditis is NON specific, but the common reported features and presentations are ↴↴↴

Viral prodrome (low grade fever, myalgia ± mild sore throat ± Cough ± diarrhea)

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One or more of the follwing ↴↴↴↴↴

- Excessive fatigue/exercise intolerance
- Chest pain (often caused by associated pericarditis or may be confused with ischemic chest pain.
- Unexplained sinus tachycardia.
- S3, S4 or summation gallop(sign of Left sided heart failure)
- New cardiomegaly in chest radiograph
- Ventricular arrhythmias
- Partial or complete heart block or
- New onset Bundle branch block
- New onset or worsening heart failure
- Cardiogenic shock
- SUDDEN CARDIAC DEATH (common cause , especially below age of 40)
- Respiratory distress /tachypnea

طب نعمل فحوصات ايه ؟

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◀ المتاح تعمل الاتي:

1) ECG:

ممکن تلاقى حاجات مش specific ،، ومعظم التغيرات فى صورہ

ST segment elevation (pericarditis pattern: diffuse with depressed PR segment due to associated pericarditis

شبه ال acute MI ،، ودى مشكله بالنسبه للمبتدئين

2) Biomarker (Troponin)

غالبا هتلاقىه على عشان ال myocardial injury

وده برضه هيعمل لخبطه و ممکن يتشخص غلط انه Acute MI.

3) ECHO : bedside ECHO

ممکن نلاقى فيه

Global or regional wall motion abnormalities

وكده برضه ممکن يتشخص غلط انه MI & Ischemia

4) CXR

اشعة الصدر العاديه مهمه فى حالة وجود اعراض Heart failure

عشان اطلع ال Cardiomegaly

و ال pulmonary edema

5) Coronary angiography

و فى حالات من كتر تشابها مع ال MI غالبا هتحتاج قسطره وفى اثناء القسطره ،،الدكاتره بكتشفوا ان مفيش حاجه فى ال coronary arteries ،، وده بيستبعد ال ACS خالص

6) Serum BNP (brain Natriuretic peptide) or pro-BNP

ده برضه بنعمله عشان يؤكد تشخيص ال heart failure

◀ الغير متاح ، ولكنه مهم لتأكيد التشخيص

CMR

رنين القلب ،، حتى وان كان الجهاز موجود فى المستشفى ولكن فى حالة الطوارئ غالبا بيكون غير متاح

Endomyocardial biopsy EMB

دى حاسمه للتشخيص فعلا ،، ولكن غير متاحه على الاطلاق !!!!!

طب امتى نشتبه فى ال myocarditis !?

When to suspect myocarditis:--

- Myocarditis should be suspected in patients with or without cardiac signs and symptoms, who have a rise in cardiac biomarkers (eg, troponin), electrocardiographic changes suggestive of acute myocardial injury, arrhythmia, or global or regional abnormalities of LV systolic function, particularly if the clinical findings are new and unexplained.
- The clinical presentation of myocarditis is highly variable and myocarditis can mimic other non-inflammatory cardiac disorders. Therefore, a high level of clinical suspicion is needed
- Clinical suspicion for myocarditis should be high in a patient who presents with clinical signs and symptoms of an acute MI, particularly if the patient lacks cardiovascular risk factors or the coronary angiogram is normal
- Myocarditis should be distinguished from stress (takotsubo) cardiomyopathy.
- Pericarditis (infectious or idiopathic) with accompanying cardiac biomarker elevation is suggestive of myopericarditis.

Approach to diagnosis of myocarditis:-

The diagnostic evaluation of patients with suspected myocarditis should include the following components:

- History and physical examination to evaluate for symptoms and signs of myocarditis and heart failure and assess possible causes
- Initial laboratory testing including an ECG, erythrocyte sedimentation rate, C - reactive protein, serum troponin levels, and generally a chest radiograph.
- Natriuretic peptide measurement is indicated if the diagnosis of HF is uncertain.
- Routine acute and convalescent viral serology testing is not helpful and is not recommended.
- Cardiac imaging:
 - An echocardiogram is performed in all patients with suspected myocarditis to evaluate regional and global ventricular function, valvular function, and other potential causes of cardiac dysfunction.

- Coronary angiography is indicated in selected patients with clinical presentation indistinguishable from an acute coronary syndrome, lifestyle-limiting coronary disease despite medical therapy, or high-risk features for ischemic heart disease on noninvasive testing.
- Cardiovascular magnetic resonance (CMR) imaging is indicated in patients with suspected myocarditis with elevated troponin level and/or ventricular dysfunction without a clear cause such as ischemic heart disease. CMR often provides supportive evidence of myocarditis when endomyocardial biopsy (EMB) is not performed for whatever reason.
- In selected patients with suspected myocarditis who exhibit signs of worsening hemodynamic compromise despite guideline-based medical management, cardiac catheterization may aid determination of hemodynamic status.
- An EMB (biopsy) is performed as clinically indicated. The decision of whether to proceed with EMB should be based upon the likelihood that EMB will significantly impact patient management

طب هل الجايد لاينز حسمت الموضوع ده من الاخر؟

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ايوه طبعا ،، الجمعيه الاوروبيه لامراض القلب قالت امتى تشتبه فى ال myocarditis من الاخر * *

The key clinical profiles were described in the 2013 European Society of Cardiology (ESC) position statement on myocarditis: □ ↪↪↪

1} ACUTE CORONARY SYNDROME like:--

↓↓↓↓↓↓↓↓↓↓↓↓↓↓↓

- ✓ With ACUTE CHEST PAIN in the absence of angiographic evidence Coronary Artery Disease [CAD]
- ✓ Acute chest pain frequently starts within one to four weeks after a respiratory or gastrointestinal infection and is frequently associated with severe and recurrent symptoms [Clinically]
- ✓ ST/T wave changes include ST segment elevation or depression and T wave inversions [ECG].
- ✓ Global or regional LV and/or RV dysfunction (on echocardiography or cardiovascular magnetic resonance [CMR]) may or may not be detected [imaging :: ECHO & CMR]

- ✓ Troponin T or I may or may not be elevated. The time course of troponin elevation may be similar to that with acute myocardial infarction (MI) or may be prolonged and sustained over several weeks or months [lab Cardiac biomarker)

2} New onset or worsening HF in the absence of CAD and known causes of HF: ---



- ✓ New onset or progressive Heart Failure over two weeks to three months with symptoms including dyspnea, peripheral edema, chest discomfort, and fatigue.
- ✓ Impaired LV and/or RV systolic function; the LV and/or RV may or may not be dilated and wall thicknesses may or may not be increased, as assessed by echocardiography or CMR. Some patients with ventricular dysfunction may progress to dilated cardiomyopathy.
- ✓ Symptoms may start after a respiratory or gastrointestinal infection.
- ✓ The electrocardiogram (ECG) may show non-specific changes, bundle branch block, atrioventricular block, or ventricular arrhythmias.

3} Life-threatening condition in the absence of Coronary Artery Disease and known causes of Heart Failure with one or more of the following:--



- ✓ Life-threatening arrhythmias and aborted sudden death.
- ✓ Cardiogenic shock – This presentation, known as fulminant myocarditis, may occur around two weeks after a distinct viral prodrome. Patients have severe cardiovascular compromise and may require mechanical circulatory support.
- ✓ Severely impaired LV function.
- ✓ Patients with acute myocarditis with associated pericarditis may present with positional or pleuritic chest pain and pericardial effusion.

TREATMENT

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❖ HF therapy (in established LSHF) (Anti- failure measures) ↷↷↷

- ACEi (small doses)
- Diuretics (e.g lasix for volume overload)
- BB (small doses of selective BB, caution if volume overload is prominent)
- Spironolactone (Spectone 25 mg)

If EF < 35 %)

- ❖ Treatment of arrhythmias.
- ❖ Refractory Heart Failure despite optimum medical therapy include mechanical circulatory support (eg, ventricular assist devices) and cardiac transplantation.
- ❖ Immunosuppressive therapy is suggested for specific autoreactive disorders such as giant cell myocarditis, sarcoidosis, noninfectious eosinophilic myocarditis, and autoreactive myocarditis in the context of known extra-cardiac autoimmune disease (eg, lupus myocarditis).
- ❖ Patients with myocarditis should avoid nonsteroidal antiinflammatory drugs, heavy alcohol consumption, and exercise.
- ❖ All patients with myocarditis should receive routine follow-up, including serial echocardiography (or other cardiac