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Genetics in the Failing Heart and Its Biological Mechanism

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ABSTRACT
Which of my patients need genetic sequencing? What do I say to my patients for genetic counselling? My lecture seeks to lay out how genetics plays a role in the full spectrum of heart failure. In recent years, our lab has been performing deep sequencing of cardiac epigenomes. These are revealing important new genetic loci for heart failure.

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Pathophysiology of Heart Failure, Cardiovascular Disease Continuum in Its Journey

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ABSTRACT
Heart failure is a syndrome which content of several kind of dyspnea tachycardia and edema of the lower part of the body caused by decreasing of cardiac out-put and associated with neurohormonal activation and alteration in autonomic control. Hypertension is the most caused of heart failure beside coronary artery disease, rheumatic disease, congenital heart disease ,ect. In deed heart failure is the end stage of most disease of the heart and is a major cause of mortality and morbidity. The prognosis of heart failure is poor with survival rate in some studies as 50% and 10% at 5 and 10 years, respectively. Management of heart failure include non pharmacological such as counseling and education of patients, life style changes, salt and fluid restriction in some severe cases, ect., pharmacological treatment such as diuretic, ACE-I/ARB, beta blocker and device if necessary**.**

Step by Step Diagnosis of Heart Failure: From Clinical Acumen to Imaging Modality Role of Echocardiography

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ABSTRACT
Echocardiography is an imaging modality that has several benefit for heart failure population and can be used in every stage of heart failure. The availability, relatively low cost and versatility of echocardiography make it the imaging procedure of choice in these patients. Also data from echocardiography provide a cornerstone in the management of heart failure.. From echocardiography procedure, it can provide information regarding left ventricular function, Right Ventricular function, hemodynamics, etiology of heart failure such as hypertensive heart disease, ischaemic heart disease, valvular lesion, congenital heart disease, cardiomyopathy and so on. Doppler assessment of haemodynamic has become an indispensable adjunct to heart failure evaluation such as pulmonary artery and right atrial pressure , LV filling and regurgitation lesion. The recent development of myocardial strain is sensitive to the preclinical phases of heart failure as well as the evaluation of LV dissinchrony. In hospital, the ability to perform echocardiography during procedure and at the bedside, including in intensive care

Keywords: echocardiography; heart failure; diagnosis

Heart Failure with Mid-Range and Preserved Ejection Fraction: From Diagnosis to Management

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ABSTRACT
Considering left ventricle ejection fraction (LVEF), there are three types of heart failure (HF); the largest is the reduced ejection fraction (HFrEF) (EF < 40%), which is widely distributed, and the smallest is the preserved ejection fraction (HFpEF) (EF > 50%). Between these two types, there is the mid-range ejection fraction (HFmrEF) (EF 40 – 49%), which is considered as a grey zone according to the European Society of Cardiology guidelines.The diagnosis of HFpEF, especially in the typical elderly patient with co-morbidities and no obvious signs of central fluid overload, is cumbersome and a validated gold standard is missing. To improve the specificity of diagnosing HFpEF, the clinical diagnosis needs to be supported by objective measures of cardiac dysfunction at rest or during exercise. The diagnosis of HFpEF requires the following conditions to be fulfilled that is the presence of symptoms and/or signs of HF, a preserved EF (defined as LVEF ≥50% or 40–49% for HFmrEF), elevated levels of natriuretic peptides (NPs) (BNP >35 pg/mL and/or NT-proBNP >125 pg/mL), objective evidence cardiac and functional alterations underlying HF.Recommendations for treatment of patients with HFpEF and HFmrEFis recommended to screen patients for both cardiovascular and non-cardiovascular comorbidities, which, if present, should be treated provided safe and effective interventions exist to improve symptoms, well-being and/or prognosis. Diuretics are recommended in congested patients with HFpEF or HFmrEF in order to alleviate symptoms and signs.

Keywords: heart failure with preserved ejection fraction; heart failure with mid-range ejection fraction; cardio- and non-cardiovascular comorbidities

Dealing with Body Fluid: How to Assess and How to Make Patients Dry Again

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ABSTRACT
Heart failure patient with the rise of congestive sign and symptoms enhanced morbidity and mortality. Prolonged congestive state led to acute decompensated heart failure. Congestion in heart failure wasindicated byextracellular fluid accumulation which increasedthe filling pressure. Filling pressure was the combination of systolic function, diastolic function, plasmic volume, and venous compliance. The gold standard to diagnose congestion in heart failure using heart catheterizationwas performed by directly measures the right atrium pressure and pulmonary capillary wedge pressure (PCWP). Sign and symptoms of congestion was based on detection of increasing filling pressure. The increase of jugular venous pressure was the most beneficial physical sign to determine volume status in patient with congestion (rales, oedem and JVP increase).
Congestion with volume overload, chronic retentionof sodium and water eventually increased intravascular volume. As a result, excessive extravascular fluid gained. Diureticswhich was important in congestion of heart failure would increasesodium and water output from the kidney. Diuretic therapy aimed to remove sodium and water excess which recently, sodium level was used as diuretic response indicator. The therapy on patient with congestion and excess fluid volume aimed to (i) reach total decongestion without excess volume, (ii) ensure adequate perfusion pressure to assure organ perfusion, (iii) maintain medical therapy appropriate to the guideline because heart failure medicines can increase diuretic response and enhance life expectancy.
A meta-analysis of fluid restriction did not indicate benefit or harm to heart failure patients. Therefore, dietary restrictions should be adjusted according to the clinical context. In case of acute heart failure with dilution hyponatraemia, more stringent fluid restriction was necessary.

Keywords: congestion; diuretic; heart failure

Ensuring Patient Not Come Back Again : Reduced Hospitalization by Optimal Pharmacological Treatment

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ABSTRACT
Heart failure is a global public health challenge frequently presenting to the emergency department. After initial stabilization and management, one of the most important decisions is to determine which patients are at high wisk pf rehospitalization. This requires decisions of several factors such as comorbidity, severity of heart failure, and also underlying condition. Periodic observation and risk stratification should be carried out, unfortunately this stratification is not performed in most patients and bring undertreatment conditions.
Adherence to guideline directed medical therapy in heart failure remains challenging. This physicians adherence is a strong predictor of favorable outcome. Angiotensin-converting enzyme (ACE) inhibitors were shown to be beneficial in patients with heart failure with reduce ejection fraction (HFrEF), however only 60% of those patients were treated with this drug although the physicians were aware of the drug's benefit. Adoption of beta blockers was significantly worse and even currently mineralocorticoid receptor antagonist are still underused.
Recent studies have demonstrated that measurement of global functional status (including comorbidities), aside from NYHA class contribute to better delineation of the risk of adverse outcome. Assessing these parameters may improve management.

Keywords: heart failure; optimal medical therapy

Get It Right in Early Management of Acute Heart Failure

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ABSTRACT
Acute heart failure (AHF) is a clinical syndrome of new or worsening signs and symptoms of heart failure (decompensated), often leading to hospitalization or a visit to the emergency department. Patients with AHF represent a heterogeneous population with high hospital readmission rates. AHF can caused by primary cardiac dysfunction or precipitated by extrinsic factors. AHF represents a period of high risk for patients; 20% to 30% mortality rate within 6 months after admission. Early diagnosis is important in AHF. Therefore, all patients with suspected AHF should have a diagnostic workup and appropriate pharmacological and non-pharmacological treatment should be started promptly and in parallel. Several steps are necessary to comprehensively evaluate a patient with AHF including define the clinical severity, establish the etiology, identify the precipitating causes and decide on disposition of patient. Early management of AHF and time to initiation of treatment are linked to outcome.

Keywords: acute heart failure; early management; outcome