

Heart Failure

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Key Points

- What is Heart failure
- Types, causes and symptoms of heart failure
- ECG changes in heart failure
- Treatment of heart failure

Patients with chronic heart failure can be divided into 2 broad categories, systolic heart failure and diastolic heart failure. There are significant differences in demographics, prognosis, left ventricular structure, as well as systolic and diastolic functions between these 2 groups of patients.¹ The purpose of this presentation is to define the terminology of heart failure and to characterize the functional causes and treatments that constitute the pathophysiological mechanisms.

Heart failure is a complex symptom which include fatigue, shortness of breath, and congestion. These symptoms are related to the inadequate perfusion of tissue during exertion and often to the retention of fluid. Its primary cause is the improper functioning of the heart to fill or empty the left ventricle properly.²The management of heart failure can no longer be confined to the relief of symptoms. The processes that contribute to left ventricular dysfunction may progress independently from the development of symptoms. Treatment to prevent or delay the progression of left ventricular dysfunction may therefore be quite different Chronic heart failure (CHF) is now recognized as a major and escalating public health problem. The costs of this syndrome, both in economic and personal terms, are considerable. The prevalence of CHF is 1–2% and appears to be increasing, in part because of ageing of the population. Economic analyses of CHF should include both direct and indirect costs of care. Healthcare expenditure on CHF in developed countries consumes 1–2% of the total health care

budget. The cost of hospitalization represents the greatest proportion of total expenditure.³ Optimization of drug therapy represents the most effective way of reducing costs. Recent economic analyses in the Netherlands and Sweden suggest the costs of care are rising. Among various causes hypertension and coronary disease were the predominant causes for heart failure and accounted for more than 80% of all clinical events.⁴ Factors reflecting deteriorating cardiac function were associated with a substantial increase in risk of overt heart failure. These include low vital capacity, sinus tachycardia, and ECG evidence of left ventricular hypertrophy. Modifiable predisposing risk factors for heart failure include hypertension, impaired glucose tolerance, an elevated total to high-density lipoprotein cholesterol ratio, obesity, and cigarette smoking. In subjects with coronary disease risk increases progressively from angina to recognized myocardial infarctions to unrecognized infarctions in men. In women angina also carried half the failure risk of a myocardial infarction, and in both sexes unrecognized infarctions were at least as dangerous as symptomatic ones. Using simple office procedures and laboratory tests, it is possible to identify high-risk candidates for heart failure early in its course for preventive management before irreversible myocardial damage. Treatment strategies have been developed based upon the understanding of these compensatory mechanisms. Medical therapy includes diuresis, suppression of the overactive neurohormonal systems, and augmentation of contractility. Surgical

options include ventricular resynchronization therapy, surgical ventricular remodeling, ventricular assist device implantation, and heart transplantation. Despite significant understanding of the underlying pathophysiological mechanisms in heart failure, this disease causes significant morbidity and carries a 50% 5-year mortality.⁵

References:

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