

HEART FAILURE OF INTENSIVE CARE UNIT SPECIALIST: DIAGNOSIS, FOLLOW-UP, AND THERAPY

Heart failure is one of the diseases that require intensive care unit. The complication, repetition rates and cost ratios are high. Careful follow-up, a good treatment and device therapy such as mechanical ventilation may be require. An intensive care unit specialist must have been experience in the pathophysiology and treatment of heart failure.
Key words: Heart failure, pathophysiology, treatment, intensive care unit

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The heart failure, especially acute heart failure because of acute pulmonary edema, is the most important condition for intensive care specialists. Heart failure is a syndrome characterized by high mortality, frequent hospitalization, reduced quality of life, and a complex therapeutic regimen including cardiac resynchronization therapy and heart transplantation. This syndrome, may result from disorders of the myocardium, endocardium, pericardium or great vessels, is a major and growing public health in the world. Although the majority of heart failure patients have symptoms including dyspnea, exercise intolerance and fatigue due to an impairment of left ventricular function, some patients with heart failure syndrome don't have left ventricular dysfunction (preserved ejection fraction). The diagnosis of heart failure is based on symptoms and signs such as elevated jugular venous pressure, S3, tachycardia, peripheral edema and ascites and an objective evidence structural or functional abnormality of the heart (1-6). Several diagnostic tests including complete blood count, biochemical tests such as serum electrolytes, urea, creatinine, liver function tests and urinalysis, electrocardiography, chest X-ray, especially echocardiography that is the most important method for evaluating systolic and diastolic dysfunction of left ventricle, cardiac magnetic resonance imaging, cardiac computerized tomography, radionuclide imaging and cardiac

catheterization are employed generally to confirm the diagnosis of heart failure. The prognosis of the heart failure is different because of variant etiologies and frequent comorbidities. There are several drugs therapy regimen including angiotensin converting enzyme inhibitors, beta blockers, diuretics and aldosterone antagonists, digoxin, inotropes and vasopressors (epinephrine, norepinephrine, dopamine, dobutamine, milrinone), antithrombotic and antiarrhythmics for the treatment of heart failure (7). Angiotensin converting enzyme inhibitors and beta blockers, especially, are recommended for delaying progression of cardiac dysfunction and to improve survival. Also, device therapy including implantable cardioverter defibrillator and cardiac resynchronization therapy and heart transplantation can use for drug resistant heart failure. Implantable cardioverter defibrillator therapy is the most important option on the treatment of heart failure because of decrease mortality. Cardiac resynchronization therapy is a therapy for patients with symptomatic heart failure resulting from systolic dysfunction. It is achieved by simultaneously pacing both the left and right ventricles and resynchronizes the timing of global left ventricular depolarization and improves mechanical contractility and mitral regurgitation (8-12).

The goals of cardiogenic acute pulmonary edema therapy are to improve clinical symptoms, stabilize hemodynamic status and minimize tissue damage. Therefore, hospitalization, especially intensive care unit conditions, should be considered in acute pulmonary edema for diagnosis and intensive therapy by intensive care specialists. These patients should be monitoring carefully. Non-invasive monitoring such as oxygenation, electrocardiography, blood pressure, body temperature and urine output or invasive monitoring including arterial line and central venous catheterization for central venous pressure and venous oxygen saturation is recommended. Conversely, pulmonary arterial catheterization, generally by Swan-Ganz catheter, is not recommended routinely unless in patients whose have cardiogenic etiology is doubtful or who are not respond traditional therapy for heart failure. Also, this catheterization may cause crucial infections.

There are several drugs therapy regimen such as diuretics, oxygen, vasodilators including intravenous nitrates or sodium nitroprusside, inotropes and vasopressors for the treatment of acute pulmonary edema (6,7). Also, ultrafiltration, non-invasive ventilation which provides ventilatory support by positive end-expiratory pressure without the need for tracheal intubation, or invasive mechanical ventilation can be used by intensive care specialists.

In conclusion, heart failure is one of the diseases that require intensive care unit. The complication, repetition rates and cost ratios are high. Careful follow-up, a good treatment and device therapy such as mechanical ventilation may be require. An intensive care unit specialist must have been experience in the pathophysiology and treatment of heart failure.

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