

Otterbein University

Digital Commons @ Otterbein

Nursing Student Class Projects (Formerly MSN)

Student Research & Creative Work

2017

Congestive Heart Failure (CHF)

Kari Vance

kari.vance@otterbein.edu

Follow this and additional works at: https://digitalcommons.otterbein.edu/stu_msn



Part of the [Nursing Commons](#)

Recommended Citation

Vance, Kari, "Congestive Heart Failure (CHF)" (2017). *Nursing Student Class Projects (Formerly MSN)*. 233.

https://digitalcommons.otterbein.edu/stu_msn/233

This Project is brought to you for free and open access by the Student Research & Creative Work at Digital Commons @ Otterbein. It has been accepted for inclusion in Nursing Student Class Projects (Formerly MSN) by an authorized administrator of Digital Commons @ Otterbein. For more information, please contact digitalcommons07@otterbein.edu.

Congestive Heart Failure (CHF)

Kari Vance BSN, RN
Otterbein University, Westerville, Ohio

Introduction

- Results from the heart failing to pump blood appropriately and cannot meet oxygen requirements for the rest of the body
- Affects almost six million Americans
- Leading cause of hospitalizations for patients older than 65 years
- Requires more hospitalization than any type of cancer
- Affects roughly two percent of the American population, and continues to be the most rapidly growing cardiac disease in the country (Parikh & Kadowitz, 2013).
- The New York Heart Association (NYHA) and the American College of Cardiology with the American Heart Association (ACC/AHA) have provided classifications for the stages and levels of heart failure (See Table 1).

Signs and Symptoms

Signs could include:

- Elevated jugular venous pressure
- Third heart sound
- Laterally displaced apex beat
- Tachycardia
- Irregular pulse
- Murmur
- Tachypnea
- Weight gain or loss
- Cold extremities
- Peripheral oedema

Figure 1. CHF Signs/Symptoms

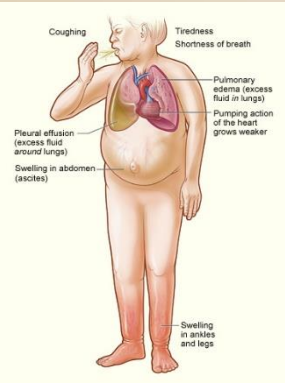


Table 1. Heart Failure Classifications

New York Heart Association (NYHA)		American College of Cardiology/American Heart Association (ACC/AHA)	
Class 1	Participates in activity without limitation	Stage A	Patients at risk for heart failure who have not yet developed structural heart changes
Class 2	Participates in activity with slight limitation	Stage B	Patients with structural heart disease who have not yet developed symptoms of heart failure
Class 3	Participates in activity with marked limitation	Stage C	Patients who have developed clinical heart failure
Class 4	Experience symptoms at rest, unable to take part in activity	Stage D	Patients with refractory heart failure requiring advanced intervention

Symptoms could include:

- Breathlessness
- Orthopnea
- Paroxysmal nocturnal dyspnea
- Fatigue
- Reduced exercise tolerance
- Nocturnal cough
- Palpitations
- Bloated feeling
- Wheezing

Overall General Symptoms:

- Confusion
- Depression
- Pain
- Loss of appetite

Notation of all symptoms and description of variations from normal routine essential to note to healthcare provider to ensure the correct diagnosis

Management of symptoms relies largely on management of symptoms paired with patient's co-morbidities.

Co-morbidity examples could include:

- hypertension
- diabetes
- lung diseases

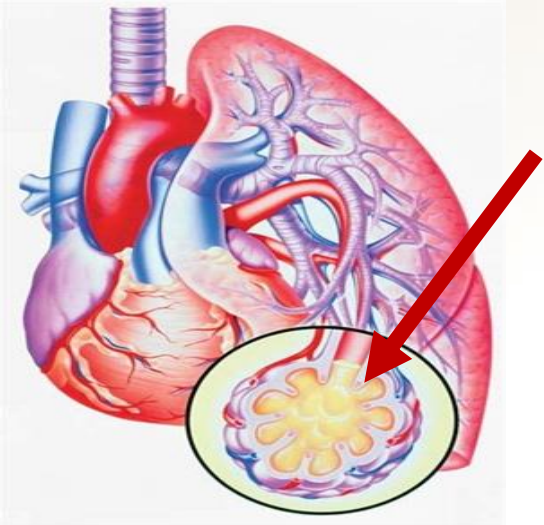
60% of elderly heart failure patients have at least three major comorbidities (Jung,Yeh, & Pressler, 2012).

Our Aging Population and the Rising Numbers of Congestive Heart Failure Diagnoses

Since this topic is of growing concern, and as our population ages, healthcare will continue to experience more patients experiencing heart failure as a condition. As clinicians manage patients with this condition, they will also have to consider the numerous other health factors and comorbidities that can affect the way in which each patient is provided care .

Especially important for use of current standards of practice with evidence-based practice approaches.

Figure 1. Pulmonary Oedema



The care of a heart failure patient can be complicated and diverse. Not every patient will react to the exact course of treatment each time. Nursing care would initially attempt to educate the patient on non-pharmacologic treatment to reduce symptoms and improve lifestyle choices. This would require diet education, education toward appropriate physical activity and limitation, and the importance of weight monitoring.

In conclusion, as noted in the above breakdown, heart failure is a complex condition often requiring changes to lifestyle and frequent monitoring. It is often associated with high rates of morbidity and mortality. Mental health issues may arise as physical symptoms change or worsen. The provider role helps to ensure patients are provided with quality information and adequate support directed toward their condition. The provider also plays a key role in recognizing mental health needs in conjunction with physical symptoms. Understanding the underlying symptoms, pathophysiology, and treatment options helps to ensure the promotion of evidenced-based informative practice and excellent care.

Underlying Pathophysiology and Significance

- Heart fails to pump blood appropriately, unable to meet oxygen needs for body
- Body attempts to compensate for impending failure by attempting to increase blood volume, increase cardiac filling, pressure, and increasing heart rate
- Eventually the heart loses the ability to adequately contract and relax, resulting in heart failure
- Dysfunction can easily lead to impaired airway clearance
- May experience the inability to sustain adequate ventilation during exertion or physical activity
- Shallow breathing limits alveolar ventilation and diminishes gas exchange, and sympathetic activation causes cardiac arrhythmias and tissue vasoconstriction
- CHF can disrupt the balance of cytokines and angiotensin II, cell signals, reactive oxygen species, and proteolytic pathways
- The renin-angiotensin system is hyperactive
- Sympathetic nerve stimulation causes release of norepinephrine, which then results in smooth muscle activation and vasoconstriction. The heart rate is then increased and peripheral vascular resistance is noted
- The noted changes in the renin-angiotensin-aldosterone system is what effects the blood pressure and the maintenance of electrolyte balance
- The stimulation of angiotensin II stimulates release of aldosterone, which then increases fluid retention and blood pressure (Brake & Jones, 2017)

Implications for Nursing Care

- Multi-disciplinary and multimodal treatment
- Individualized plan of care, use of medication, diet changes, smoking cessation, pharmacological therapy, weight loss, and behavior changes
- Main goal is to improve quality of life, increase longevity, and reduce cardiovascular and respiratory complications
- Treatment varies between non-pharmacologic methods, pharmacologic strategies, and may include the use of invasive therapies
- Pharmacologic therapy could include:
 - angiotensin-converting-enzyme inhibitor (ACE)
 - aldosterone receptor blocker (ARB)
 - vasodilators
 - beta-blockers
 - aldosterone antagonists
 - diuretics
 - anticoagulants
- Other interventions could include:
 - sodium and fluid restriction
 - patient focused physical activity
 - weight control
- Use of invasive therapies include:
 - pacemakers
 - implanted-cardioverter-defibrillators
 - resynchronization therapy
 - coronary artery bypass grafts
 - heart transplants

References

Abete, P., Testa, G., Della-Morte, D., Gargiulo, G., Galizia, G., de Santis, D., & ... Cacciatore, F. (2013). Treatment for chronic heart failure in the elderly: current practice and problems. *Heart Failure Reviews*, 18(4), 529-551. <https://doi.org/10.1007/s10741-012-9363-6>

Bartlett, Y. K., Haywood, A., Bentley, C. L., Parker, J., Hawley, M. S., Mountain, G. A., & Mawson, S. (2014). The SMART personalized self-management system for congestive heart failure: results of a realist evaluation. *BMC Medical Informatics and Decision Making*, 14(109). <https://doi.org/10.1186/s12911-014-0109-3>

Brake, R., & Jones, L. D. (2017). Chronic heart failure part 1: pathophysiology, signs and symptoms. *Nursing Standard*, 31(19), 54-63.

Carpenter, J. E. (2015). Improving Congestive Heart Failure Care with a Clinical Decision Unit. *Nursing Economics*, 33(5), 255-262.

Chaves, C., & Park, C. I. (2016). Differential pathways of positive and negative health behavior change in congestive heart failure patients. *Journal of Health Psychology*, 21(8), 1728-1738. <https://doi.org/10.1177/1359105314564812>

Guidi, J., Offidani, E., Rafanelli, C., Pava, G. A., Roncuzzi, R., & Sinino, N. (2016). The Assessment of Allostatic Overload in Patients with Congestive Heart Failure by Clinimetric Criteria. *Stress & Health: Journal of The International Society for the Investigation of Stress*, 32(1), 63-69. <https://doi.org/10.1002/smi.2579>

Huntington, M. K., Guzman, A. I., Roemen, A., Fieldsend, J., & Saloom, H. (2013). Hospital-to-Home: a hospital readmission reduction program for congestive heart failure. *South Dakota Medicine: The Journal of The South Dakota State Medical Association*, 66(9), 370-373.

Jung, M., Yeh, A., & Pressler, S. J. (2012). Heart failure and skilled nursing facilities: review of the literature. *Journal of Cardiac Failure*, 18(11), 854-871. <https://doi.org/10.1016/j.cardfail.2012.09.006>

Kelley, R. C., & Ferreira, L. F. (2017). Diaphragm abnormalities in heart failure and aging: mechanisms and integration of cardiovascular and respiratory pathophysiology. *Heart Failure Reviews*, 22(2), 191-207. <https://doi.org/10.1007/s10741-016-9549-4>

Kheirbek, R. E., Alami, F., Citron, B. A., Afari, M. A., Wu, H., & Fletcher, R. D. (2013). Trajectory of illness for patients with congestive heart failure. *Journal of Palliative Medicine*, 16(5), 478-484. <https://doi.org/10.1089/jpm.2012.0510>

Lee, N. S., & Daniels, L. B. (2014). Personalized CHF treatment: PCT to guide therapy in heart failure patients. *International Journal of Cardiology*, 176(2), 307-308. <https://doi.org/10.1016/j.ijcard.2014.07.176>

MacCallum, A., & Hughes, S. (2009). Breathlessness in end-stage heart failure. *British Journal of Cardiac Nursing*, 4(11), 514-518.

Parikh, R., & Kadowitz, P. J. (2013). A review of current therapies used in the treatment of congestive heart failure. *Expert Review of Cardiovascular Therapy*, 11(9), 1171-1178. <https://doi.org/10.1586/14779072.2013.816478>

Suman-Horduna, I., Roy, D., Frasure-Smith, N., Talajic, M., Lesperance, F., Blondeau, L., & ... Khairiy, P. (2013). Quality of life and functional capacity in patients with atrial fibrillation and congestive heart failure. *Journal of The American College of Cardiology*, 61(4), 455-460. <https://doi.org/10.1016/j.jacc.2012.10.031>

Vedel, I., & Khanassov, V. (2015). Transitional Care for Patients with Congestive Heart Failure: A Systematic Review and Meta-Analysis. *Annals of Family Medicine*, 13(6), 562-571. <https://doi.org/10.1370/afm.1844>

Wang, H., Robinson, R. D., Johnson, C., Zenasna, N. R., Jayswal, R. D., Keithley, J., & Delaney, K. A. (2014). Using the LACE index to predict hospital readmissions in congestive heart failure patients. *BMC Cardiovascular Disorders*, 14(97). <https://doi.org/10.1186/1471-2261-14-97>