Integrative Health in Heart Failure Care: What is the Evidence?

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Conference Learner Outcomes:

• Equip holistic nurses with communication skills and resources that strengthen their voice, comfort, and ability to participate in health care evolution.

• Examine groundbreaking approaches to inquiry, including educational paradigms, research, evidence-informed practice and quality care.

Conference Learner Outcomes:

• Explore innovative pathways designed to nourish and strengthen holistic self-development (self-awareness, self-reflection, self-care) in personal and professional growth.

• Creatively apply the science of holism into healthcare approaches to facilitate health, wellness, and wellbeing in diverse populations regardless of the health care setting.

Agenda/ Goals

• 1. Review terms associated with heart failure
• 2. Review the pathophysiology of HFrEF and HFpEF
• 4. Review Guideline Directed Medical Therapy for HFrEF
• 5. Review Guideline Directed Medical Therapy for HFpEF
• 6. Review the function of the parasympathetic nervous system
• 7. Ask the Burning question: What is the evidence that Integrative techniques improve quality of life (QOL) outcomes in patients with HFpEF?
• 8. Identify those techniques known to improve QOL in patients with HFpEF
  • Music, acupuncture, MB, Exercise, Vitamin D, Magnesium, CoQ10
Terms Associated with Heart Failure (HF)

- 2013. American Heart Association and the American College of Cardiology Foundation produced the *Guideline for the Management of Heart Failure* (Yancy et al., 2013).
- Extensive literature review to determine evidence based guidelines
- Provided definition of HF: “A complex clinical syndrome that results from any structural or functional impairment of ventricular filling or ejection of blood.”
- Different people have different manifestations and mechanisms: Consequently the term Heart Failure is preferred over Congestive Heart Failure.

- **HFrEF**
- **HfEF**

**HFrEF**

- “Typical” presentation of what was known as Congestive Heart Failure
- Heart unable to generate energy to eject blood to elicit an efficient ejection fraction that allows for “normal” activity.
- Hence the term Heart Failure with reduced Ejection Fraction
- Well studied: Guidelines for medical therapy developed
  - GDMT: Class 3: Ace inhibitors, Diuretics, ARB if Ace not tolerated/ Beta blockers (choice of 3 specific), Aldosterone antagonists, hydralazine and isosorbide dinitrate for African Americans, updated in 2017 (Yancy et al., 2017) to add angiotensin receptor inhibitor (ARNI) valsartan/sacubitril, brand name: Entresto.

**HfEF**

- Heart Failure with reduced ejection fraction
  - Ischemic
  - Cardiomyopathy
    - Post partum
    - Ischemic
    - Viral
    - Bacterial
    - Valvular
    - Alcoholic
    - Other metabolic diseases

**Cardiomyopathy:**
HFpEF

- There is a population which is growing who experience activity intolerance, has a poor prognosis, high mortality, high morbidity and are more frequently readmitted to the hospital (Gupta, 2017)
- Heart Failure with preserved ejection fraction
- Pathophysiology: Complex syndrome characterized by stiffening of the myocardium, reversing of the normal pressure waves and elevated diastolic pressure.
- Consequently, decreased filling due to elevated pressure, decreased volume in ventricle.
- So complex, no YouTube video < 8 minutes

How to diagnose HFpEF

Epidemiology

- Female
- Older: length of hypertension?
- Hypertension
- No evidence as to race
- Diabetes
- Obesity
- Multiple chronic diseases

Treatment of HFpEF

- Poorly studied: Don’t understand the mechanism (Zamani et al, 2017)
- Small studies: Difficult to identify population due to variability of access to echocardiography (Virnig, Shippee, O’Donnell, Zeglin & Parashuram, 2014)
- Treatment with usual GDMT for HF produces poor results:
  - Zamani et al, 2017: started with randomized population of 44 patients. Due to side effects of medication, sample size ended at 21.
  - QOL unchanged
  - 6 minute walk test declined
What is the evidence that Integrative Medicine techniques improve quality of life (QOL) outcomes in patients with HFpEF?

• Integrative Medicine Defined:
  • Integrative medicine, as defined by the American Board of Integrative Medicine® (ABOIM) and the Consortium of Academic Health Centers for Integrative Medicine, is the practice of medicine that reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic approaches, healthcare professionals, and disciplines to achieve optimal health and healing. (ABOIM, 2018)

Process:

• Intensive literature review looking for Integrative techniques that either have been studied, are in the process of being studied or have built a conceptual framework to begin studies related to Quality of Life is in process.

• Integrative techniques reviewed for this presentation include music, acupuncture, mind-body intervention, exercise, vitamin D, Magnesium, Co Q 10. The brevity of the presentation prevents the addition of multiple other interventions (in other words...)
Parasympathetic Nervous system

- Rest and Digest

Music

- Music has been studied in various cultures and various health care settings for the properties to induce relaxation, reduction of anxiety, decrease need for pain medication, and decrease circulating catecholamine levels with resultant reduction in chronotropic and inotropic processes with consequent reductions in physical and psychological stressors (Burrai, Hasan, Luppi & Micheluzzi 2018).

- Typical example: lullabies: slow and repetitive pitch and sequences
- Dosage and frequency not defined
- Pitch is generally a minor third and can be ascending: Brahm’s Lullaby or descending as follows:

Different Music for different folks

- Females react more positively (better parasympathetic response) to classical music
- Men react more to “heavy metal”
Music:

- Music therapists enable the patient to participate in the music-making process. Much more complicated than just listening to music.
- Relaxing music reduces arterial stiffness and has shown to increase endothelial nitric oxide.
- Self-selected joyful music is associated with an increase in brachial flow-mediated dilatation.

Acupuncture:

- Research hampered by poor quality research:
  - Sham vs “real” acupuncture
  - Differences in types of acupuncture
  - Small sample sizes
  - Frequency of treatment
Acupuncture

- Systematic Review by Ni & Frishman (2018) found:
  - Acupuncture point P6 activates vagal preganglionic activity to increase parasympathetic activity
  - Acupuncture increased heart rate variability (clinical indicator of autonomic regulation) indicating sympatholytic response
  - Meta-analysis of 4 studies (2 larger RCT’s): increased diastolic pressure reduction in people taking pharmacologic agents concurrently
  - No change in blood pressure in patients not on medications
  - P6 and ST36 had a significantly increased 6 minute walk distance at the end of 5 weeks

Mind-Body Interventions

- Metin et al. (2018) performed a systematic review of mind-body interventions (MBI) for individuals with heart failure
  - Used 24 RCTs (n=1314) of 9 MBI types: Tai Chi, yoga, relaxation, meditation, acupuncture, biofeedback, stress management, Pilates, reflexology
  - 95.8% reported small to moderate improvements in Quality of Life, exercise capacity, depression, anxiety and fatigue, blood pressure, heart rate, heart rate variability and B-type natriuretic peptide
  - Limitations: variability in biofeedback, stress management and acupuncture definitions

Exercise

- Exercise has been found to be THE ONLY EFFICACIOUS TREATMENT OF HEART FAILURE. Class 1A recommendation in 2013 Guidelines (Yancy et al. 2013)
- Resulted in improvements to payments for cardiac rehab from Medicare
- Women with HF are severely underrepresented in exercise intervention trials. In Europe, only 4 RCT (a total of 84 women) have specifically studied the efficacy of exercise training on health related outcomes in women VanCraenenbroeck (2017)
- Cardiologists, Primary Care Practitioners, and Nurses need education regarding the efficacy of exercise training in patients with heart failure
Supplements:

- Supplements can and will be purchased over the counter
- Patients will choose supplements over pharmaceuticals
- Supplements can vary in quality and potency
- Supplements from other countries may have detrimental elements
- A wise clinician can create a blend of pharmaceuticals and supplements that enhances patient activation and safety.

Vitamin D

- The VINDICATE study: **VINDICATE = VitamIN D treating patients with Chronic heArT failurE. Witte et al. (2016)**
- A single center study utilizing “high dose” vitamin D3 (4000 iu/day), prospective randomized trial. (n=229)
- Two outcomes: 6 minute walk test(6MWT), echocardiogram changes related to HF
  - 6MWT: no significant change
  - Echocardiogram: “statistically significant and prognostically and clinically relevant improvements in the secondary outcomes of LVEF and LV dimensions and volumes, thus suggesting that vitamin D is leading to beneficial reverse remodeling.”

Vitamin D

- Older adults and people of color need more vitamin D
- Vitamin D suppresses PTH which is implicated in HF through the Calcium mediation process
- Vitamin D improves depression
- Vitamin D helps prevent falls. (My research showed a clinically significant decline in falls in LTC)

Magnesium Sulfate

- Widely known: Classic arrhythmia
- Commonly not used
- Most recent US literature early 2000
- First literature reporting cardiovascular benefit 1953
- Inverse relationship between magnesium and cardiac arrhythmias, risk of CVD, enhances endothelial dependent vasodilatation, reduces inflammation, improved lipid and glucose metabolism and reduces risk of HF (Wannamethee et al. 2018)
Women included in studies?

- No

- Other Tidbits from practice:
  - Magnesium is an essential regulator of calcium flux and the intracellular actions of calcium.
  - Magnesium is needed for muscle relaxation, calcium is needed for muscle contraction (i.e. slow channel).

- Overdose of magnesium:

COQ10 Cicero and Colletti (2017)

- Coenzyme Q 10 is present in the cells of the body, particularly in the mitochondria.

- CoQ10 deficiency has a role in the development and progression of HF due to mitochondrial dysfunction.

- It is an antioxidant, reductor of oxidative stress, and enhances ATP synthesis.

Aromatherapy

- Cho, Lee and Hur (2017)
  - Use of Lavender alleviated stress and improved sleep quality in intensive care unit patients after 2 days of the experimental treatment.
    - N 64, 32 control, 32 experimental (powered for 29 in each group)
    - Lucid patients in ICU for 2 nights
    - Exclusion: hypotensive, arrhythmias, mental illness, taking sleep aid medications, allergies to essential oils
    - Used aromastone with 3 drops of lavender essential oil. Oils inhaled through deep breathing then aromastone hung on the bedside railing for the night. Aromastone removed at 0800.

Questions?
References


