Chronic Disease: Quality of Life and the Role of Therapy

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Objectives

- Identify the impact of chronic disease on the Healthcare system
- Recognize the impact therapy services can have on the progression of chronic disease
- Describe how ALF and Home Health therapy services can work together to maximize patient’s quality of life
Chronic Disease

- Top 8 conditions in US:
  1. Heart Disease ($78 B)
  2. Trauma-related ($68.1 B)
  3. Cancer ($57.5 B)
  4. Medical Disorders ($57.5 B)
  5. Pulmonary ($51.3 B)
  6. Hypertension ($48.5 B)
  7. Diabetes ($48.3 B)
  8. Osteoarthritis ($37.5 B)

- Population with one chronic disease
  - Age 18 – 34 (63%)
  - Age 35 – 54 (88%)
  - Age 55 – 64 (96%)
  - Age ≥ 65 (99%)

-Caring Magazine (October 2009)

- Chronic disease accounts for more than 75% of the nation’s $2 trillion in medical care costs annually - CDC (2009)

Progression of Chronic Disease: Impact on ALF

- Staffing
  - Staffing levels
  - Staff Education

- Census
  - Acute care hospitalizations
  - Transitions to higher level of care
Progression of Chronic Disease: Impact on ALF (cont.)

- Cost
  - Care hours needed
  - Supplies
  - Supervision

- Quality of life
  - Individual
  - Community Cohesiveness

Primary Chronic Diseases Affecting ALF Residents

- Over 600,000 Americans resident in ALF
- 46% of Residents in ALF have chronic conditions in one of 3 areas:
  - Cardiovascular
  - Pulmonary
  - Endocrine
Primary Chronic Diseases Affecting ALF Residents

• 25% of residents have two or more specific diagnoses
  – Heart Failure
  – Osteoporosis

• 67.7% of residents have some type of Dementia
  – 26% of these individuals had additional diagnosis of depression and/or anxiety (Hopkins)
  – Healthcare cost are 3 times higher for individuals with chronic disease and dementia (Alzheimer’s Society)

Disease Management: Healthcare Benefits

• Reduce avoidable acute care hospitalization
• Reduce burden of cost related to chronic diseases
• Improve patient disease self-management
• Improve patient quality of life
• Collaborate with other settings (e.g. hospitals, PCHs/ALFs, community services, physicians)
Disease Management Model

1. Population Identification
2. Comprehensive Needs Assessment
3. Proactive Health Prevention Program
4. Patient-Centric Health Management
5. Self-Management Interventions
6. Routine Reporting and Feedback Loops
7. Evaluation of Outcomes

Heart Failure: Epidemiology

- Prevalence
  - Estimated 5.2 million Americans
  - Over 550,000 newly diagnosis/year
  - 1 million hospitalized/year

- Economic burden
  - $33.2 billion/year
  - Lack of adherence to diet and medication therapies most common reason for ED visits for heart failure patients

(Crouch, et. Al, 2006)
HEART FAILURE HOSPITALIZATIONS

Number of HF hospitalizations increasing

CDC/NCHS: Hospital discharges include patients both living and dead

Adapted with permission from AHA, ASA. Heart Disease and Stroke Statistics—2004 Update. Available at: http://www.americanheart.org/downloadable/heart/1072967669400HSSstats2004Update.pdf

HEART FAILURE: MORTALITY

• 20% of heart failure patients die within the first year of diagnosis
• 50% die within 5 years
• >600,000 deaths/year
• >50% die suddenly – Sudden Cardiac Death
Heart Failure: Impact of Therapy

- Physical Therapy
  - General mobility
  - Strengthening
  - Oxygen consumptions
  - Vital sign response to activities
  - Affects of co-morbidity such as depression
  - Quality of Life

Heart Failure: Impact of Therapy (cont.)

- Occupational Therapy
  - Energy conservation with activities of daily living
  - Activity modification to improve tolerance for quality of life activities (social activities)
  - Environmental modifications to improve efficiencies
  - Meal set up with dietary needs to promote optimal dietary levels
Heart Failure: Impact of Therapy

• Speech Language Pathologist
  – Cognitive activities to improve organizational and comprehensive skills for activity modification and follow through with home exercise programs
  – Swallowing techniques to ensure appropriate oxygen levels during dietary intact

Current Therapeutic Research Findings: Oka Study

• Impact of a home based walking and resistance training program on quality of life in patients with heart failure
  – Patient Population
    • 36 patients with NYHA Class II or Class III heart failure
  – Treatment intervention:
    • Walking at home 3 x week gradual increase to 70% of peak heart rate
    • Two days a week of total body resistance exercise
    • Education sessions for monitoring heart rate (HR), rate of perceived exertion (RPE), and resistance exercises

Oka RK, De Marco T, et al; Am J Cardiol 2000; 85(3) 365-369
**Current Therapeutic Research Findings: Oka Study** (cont.)

- **Conclusion:**
  - Program was effective in improving symptoms of fatigue, dyspnea, and quality of life as reflected by emotional function and mastery, even though there were minimal changes in physical fitness levels.
  - Data suggest that a combined approach of aerobic training and endurance training are effective in reducing the symptoms of heart failure and improving quality of life.

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**Current Therapeutic Research Findings: Klocek Study**

- **Effects of physical training on quality of life and oxygen consumption in patients with congested heart failure**
  - **Patient Population**
    - 42 men with a history of ischemic heart failure all patients were treated with ACE inhibitor and diuretic for at least 3 months.

Conclusion:

- Left ventricular ejection fraction did not improve
- Peak oxygen, exercise time, and workload improved in both groups level was greatest in increased workload group
- Quality of life was improved in several areas in both groups
  - Anxiety level
  - Depressed mood
  - Positive well being
  - Self control
  - General health
  - Disease Symptoms

Diabetes: Epidemiology

- 17.5 million Americans have diabetes (2007)
- Older Adults who have Diabetes are 73.6% more like to have physical disabilities
- Diabetes is associated with 2-3 times increased odds of functional disability
- Co-morbidities such as cardiovascular disease and obesity explain 85% of the functional disabilities
Diabetes: Economic Burden

- 2007 Total estimated cost to the health care system was 174 billion (1 out of every 5 healthcare dollars)
  - 50% of the cost attributed to hospital and medical care
  - 12% to diabetes medication and supplies
  - 11% retail prescriptions to treat the complications
  - 9% physician office visits

- Medical cost for an individual with diabetes is 2.3 times higher than an individual who does not have diabetes

Diabetes and Wounds: Economic Burden

- 3 billion dollar a year industry
- 40 million dollar a year cost on product alone
- Diabetic foot ulcers are the leading cause of hospitalizations among diabetics with a cost of at least $1 billion annually
Diabetes and Wounds: Economic Burden (cont.)

- 60% of all wounds developed are pressure often as complications from diabetes
- 19% fatality rate directly related to
- 33% of all pressure wounds become infected
- 72% of all can be prevented!!!!!!!!!!

Nursing Economics, Jan-Feb, 2002

Diabetes: Impact of Therapy

- Physical Therapy
  - General mobility
  - Sensory reintegration
  - Co-morbidities such as cardiovascular concerns
  - Compensatory strategies for balance deficits secondary to diabetic neuropathy
  - Foot care such as off-loading, footwear
  - Wound care
APTA Guidance: Physical Therapist and Wound Care

- APTA Guide to Practice:
  - PT provides application of therapeutic procedures and modalities that are intended to enhance wound perfusion, manage scar, promote an optimal wound environment, remove excess exudate from a wound complex, and eliminate nonviable tissue from a wound bed.
  - Procedures and modalities may include: debridement, dressings, orthotics, protective and supportive devices, physical agents such as mechanical and electrotherapeutic modalities and topical agents.

The Role of the Physical Therapist (cont.)

- Direct Wound Care
  - Dressing Changes
  - Debridement
  - Negative Pressure Therapy
  - Pressure Relieving Surfaces
  - General Mobility
  - Edema Control
  - Modalities
The Role of the Physical Therapist (cont.)

• Patient Education
  – Mobility related to wound
  – Education on skin care and risk reduction
  – Medication related to wound healing
  – Diet related to wound healing
  – Emergency wound needs and who to contact

The Role of the Physical Therapist (cont.)

• Care Coordination
  – Follow-up on education related to wound treatments
  – Reporting patient status back to the team
  – Care coordinating with physician offices and wound centers
  – Transitioning patient between levels of care
**Current Wound Care Research Findings: Blume study**

- Comparison of negative pressure wound therapy using vacuum-assisted closure with advanced moist wound therapy in the treatment of diabetic foot ulcers
  - Patient Population: 341 participants
    - Adults 18-64
    - Older Adults 65 or older
    - Wagner's scale stage 2 or 3 ulcer


**Current Wound Care research findings: Blume study (cont.)**

- Largest Negative Pressure Wound Therapy (NPWT) trial to date
- Demonstrate that NPWT is as safe as and more efficacious than Advanced Moist Wound Therapy (AMWT) in the treatment of diabetic foot ulcers
Current Wound Care research findings: Ennis study

- Ultrasound therapy for recalcitrant diabetic foot ulcers:
  - Patient Population: 133 participants
    - Adults 18-64
    - Older Adults 65 or older
    - Wagner’s stage 1 or 2 ulcers on plantar surface of the foot


Current Wound Care research findings: Ennis study (cont.)

- When used appropriately, 40.7% of treated wounds were healed after 12 weeks of care compared to 14.3% of wounds healed in the sham treatment group
- Device was found to be safe, well-tolerated by patients, and easy to administer
**Diabetes: Impact of Therapy**

- **Occupational Therapy**
  - Visual and perceptual activities to compensate for diabetic retinopathy
  - Fine Motor activities for treatment of diabetic neuropathy
  - Pressure relieving and positioning
  - Skin inspection as a component of ADLS
  - Meal planning and strategies to monitor diet and diabetes
  - Safety instructions with ADLS to minimize risk of falls and skin injury

**Diabetes: Impact of Therapy (cont.)**

- **Speech Language Pathologist**
  - Memory and cognitive activities to promote independence with safety education and diet management
  - Reading assessment (retinopathy)
  - Strategies to continue IADLs to maintain quality of life (e.g., large print activities, large puzzles, size of TV screen, large telephone)
Current Therapeutic Research
Findings: Brandon Study

• Effects of long-term resistive training on mobility and strength in older adults with diabetes
  – Patient Population
    • Older Adults 65 or older
    • All taking oral hypoglycemic or insulin
    • Community dwellers


Current Therapeutic Research
Findings: Brandon Study (cont.)

• Results from this study demonstrate that a 24-month moderate-intensity resistive-training intervention improves strength and mobility in older adults with diabetes for the duration of the training intervention
Dementia: Epidemiology/Economic Burden

- 67.7% of ALF residents have some type of dementia
  - 26% of these individuals had additional diagnosis of depression and/or anxiety (Hopkins)
  - Healthcare cost are 3 times higher for individuals with chronic disease and dementia (Alzheimer’s society)

Falls: The Facts

- More than one third of adults 65 and older fall each year in the US [CDC]
  - After age 75 the incidence increases [AGS]
- More than 30% of community-dwelling older adults fall at least once each year; of the 30%, half do so repeatedly [AGS]
- Of those who fall, one in forty will be hospitalized, only half will be alive at the end of the year [Kane et., al., 1994]
Falls: The Facts (cont.)

- More than 309,500 hospital admissions for hip fractures in 2003 [NCHS 2006]
- Falls, even without injuries, often cause a person to develop a fear of falling -> people limit their activity and predispose to repetitive falls [CDC]

Dementia and the Connection to Falls

- Residents who have Dementia are 2 times more likely to fall
- 4% of falls result in fractures
- 11% of falls result in soft tissue injuries
- Impact of falls
  - Loss of function
  - Self-imposing functional limitation (fear of falling)
Dementia: Impact of Therapy

• Physical Therapy
  – General mobility
  – Strengthening
  – Exercise to reduce affects of co-morbidities such as depression and anxiety
  – Safety training with caregiver
  – Appropriate assistive device
  – Home programs to maximize joint mobility with disease progression
  – Environmental assessment for reduction of fall risk

Dementia: Impact of Therapy (cont.)

• Occupational Therapy
  – Cognitive assessment and cognitive activities
  – Environment modification for safe ADLs
  – Social and leisure activities to maximize quality of life with disease progression
  – Home program for fine motor skills to maximize self care activities with disease progression
  – Appropriate adaptive equipment to maximize self care (e.g., feeding equipment to ensure ability to feed self and maintain weight)
Dementia: Impact of Therapy (cont.)

• Speech Language Pathology
  – Cognitive and memory activities to promote optimal independence
  – Swallowing assessment to ensure appropriate nutrition as disease progresses
  – Appropriate social interactions to ensure continued quality of life (determining language comprehension and instructing caregivers)

Current Therapeutic Research Findings: Toulotte Study

• Effects of physical training on the physical capacity of frail, demented patients with a history of falling: a randomized controlled trial
  – Patient Population
    • Older Adults 65 or older
    • Dementia (MMS below 21)
    • Fallen at least twice

Current Therapeutic Research
Findings: Toulotte Study (cont.)

• General physical training significantly improved walking, mobility, flexibility, balance
• Improved prevented new falls in dependent and cognitively impaired patients with a history of falling, while there was no alteration in the control group
• Mental state of the subjects, as evidenced by the mini-mental state examination, revealed a significant decrease in the control group (p=.03), while the status of the training group was unchanged

Current Therapeutic Research
Findings: Singh Study

• A randomized controlled trial of progressive resistance training in depressed elders
  – Patient Population
    • Older Adults 65 or older
    • DSM-IV diagnostic criteria of major or minor depression

**Current Therapeutic Research Findings: Singh Study**

- Progressive resistance training is an effective antidepressant in depressed elders, while also improving strength, morale and quality of life
- Training significantly reduced all depression measures
- Quality of life subscales were significantly improved by exercise compared to control
- Strength increased a mean of 33% in exercisers and decreased 2% in controls

**Current Therapeutic Research Findings: UK Study**

- Occupational Therapy improves Quality Of Life for dementia patients and their carriers
  
  - Patient Population
    - 135 individuals
    - Mild to Moderate dementia
    - Community Dwellers

http://www.medicalnewstoday.com/articles/56942.php
Current Therapeutic Research Findings: UK Study

- At both six weeks and three months the patients who received occupational therapy functioned significantly better in daily life than those who did not - with 75% of those in the group showing an improvement in process skills and 82% needing less assistance in day to day tasks.
- Primary caregivers who received occupational therapy also felt significantly more competent than those who did not.

Current Therapeutic Research Findings: UK Study (cont.)

- Occupational therapy is likely to be more effective than drugs or other psychosocial interventions - as the levels of improvement in their trial outstrip the effects recorded in previous trials of drugs and other interventions.
**Current Therapeutic Research Findings: UK Study (cont.)**

- ‘Strongly advocate' the inclusion of occupational therapy in dementia management programs
  - Clinical gains - obtained with occupational therapy for both patients and their caregivers underlines the importance of adequate diagnosis and pro-active management in dementia

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**Chronic Disease Management: Collaborative Approach**

- **Focus on prevention of disease progression**
  - Home health team working to promote independence
  - ALF coordinating to follow living environment activities to maximize quality of life

- **Interdisciplinary team approach**
  - Home health therapies
  - Home health monitoring
  - ALF team members
Determining Therapy Needs: Screening Tool

Summary:

• Chronic diseases have a significant impact on the American Health Care System
• Chronic diseases and co-morbidities affect the majority of residents in ALFs
• Home health therapy services have measurable impact on the quality of life and the level of function for patients who have chronic diseases
• ALF and home health therapy can work together to maximize quality of life for residents
Summary (cont.)

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