Physical Therapy Considerations for Diabetes Mellitus

PTA 103
Intro to Clinical Practice 2

Review of DM Types

• Type 1
  – Insulin dependent
  – Juvenile diabetes
  – Approximately 5% of all diabetics
• Type 2
  – Insulin resistant
  – Adult onset
  – Affects approximately 20% of persons over age of 65
  – Obesity and race/ethnic background show patterns of prevalence

Review of symptoms

• Type I
  – Increased appetite (polyphagia)
  – Frequent urination (polyuria)
  – Excessive thirst (polydipsia)
  – Fatigue (Malaise)
  – Weight loss
Chronic Complications of DM

• Improved medical management of DM results in long term survival
• Chronic pathological changes and conditions evolve over time
  – Neuropathy (progressive increases in pain and sensation changes/sensory loss)
  – Neuropathy in autonomic nervous system can lead to impaired regulation of heart, lung function, and/or other function = high risk for silent MI (heart attack without angina)
  – Cardiovascular disease (leads to increased risk for MI)
  – Nephropathy (leads to kidney failure)
  – Retinopathy (leads to visual changes/loss of vision)
  – Impaired wound healing (can lead to amputation)
  – Higher infection risk (associated with hyperglycemia)

Medical Management of DM (Type II)

• Education, Education, Education (pre-diabetes)
• Insulin replacement (oral/injectable) / insulin infusion (pump)
• Diet
• Exercise
• Preventative skin/foot care

PT Considerations
Role of the PT

• Review the medical history and reason for referral
• General health status/family history
• Chief complaint/current condition
• Previous level of function
• Review of clinical and lab tests
  – Hypoglycemia <= 70 mg/dL blood glucose
  – Normal blood glucose range: 70-110 mg/dL
Exercise and Insulin

• Exercise produces an insulin-like effect in that blood sugars are mobilized and utilized quickly in response to an increased demand for energy/fuel.
• Persons with DM are more at risk for hypoglycemia with exercise.
• Persons with DM may choose to temporarily stop insulin infusion prior to exercise or may be encouraged to eat a small snack before exercise.

PT Considerations
Role of PT

• Review of body systems
  – Cardiovascular/pulmonary: (VS, SpO2, pain, VS response with activity, cough strength, breath sounds)
  – Integumentary: skin checks, particularly in WB areas, check surgical/wound dressings, IV sites
  – Musculoskeletal: ROM, MMT, levels of assistance
  – Neuromuscular: sensory testing (light touch, sharp/dull, vibration), proprioception
  – Communication, Cognition, Language, Learning Style

Tests and Measurements

• HR and BP response to position changes
  – Autonomic neuropathy may result in “blunted” HR/BP response
• Assistive devices: adaptive footwear, braces, device for gait
• Gait (e.g. deviations, as a function of endurance), locomotion, and balance
• Pain
PT Considerations

Role of the PT
• Formulate a PT diagnosis (impairment, functional limitation, disability) based on the examination findings
• Prognosis: makes PT treatment recommendations based on PT diagnosis and potential for rehabilitation
• Generates a plan of care which includes selected interventions, frequency and duration

Role of PT/PTA team
• PTAs are the extension of the PTs eyes, ears, and hands.
• PTAs communicate observations, tests and measures that indicate a need for a PT reassessment (e.g., pt is declining/improving past current goals)
• PT/PTAs collaborate on best practices for patient-centered communication
• PT/PTAs appreciate and acknowledge individual and cultural differences which may impact patient resources for optimal self-care
• PT/PTAs discuss potential or current safety considerations during treatment (patient and provider)
• PT/PTAs discuss and consider home and community activities when prioritizing and selecting interventions
• PT/PTAs interact professionally, offer and accept feedback as members of the physical therapy and larger health care teams

Role of the PTA
• Apply knowledge of DM s/sx during treatment
  – Higher incidence of postural hypotension
  – Angina equivalents (monitor and request feedback regarding sxs of nausea, vomiting, dizziness, SOB) due to unreliable ANS
  – Check skin before and after treatment, especially in friction/WB areas for signs of poor circulation/erythema
  – Ask patients about blood sugar control patterns, when they last took their blood sugar measurement; what was the value; when/what did they last eat
  – Screen for unreported falls, cardinal signs of inflammation
Role of the PTA
Perform and document thorough tests and measures as noted in the plan of care
• Vital signs and pain assessment
• Skin checks, wound measures, description of wound status
• Sensation tests (light touch, deep pressure, vibration, etc.)
• Activity endurance, aerobic exercise capacity
• Muscle performance (MMT, assist levels)
• ROM (Active, volitional range)
• Balance tests (Berg, Tinetti)

Role of PTA
Interventions
• Endurance training: therex, gait/locomotion, functional activities
• Assistive device, orthotic training: foot and ankle braces, appropriate footwear, assistive devices for gait
• Wound care: dressing changes, infrared
• Balance activities
• W/C and bed positioning for pressure relief

Role of PTA
Communication, Coordination, Documentation
• Educate patients in self-care for skin, ROM, mobility, lifestyle modification (weight management) for maximal health and wellness for the individual condition
• Document most recent blood sugar levels if available
• Schedule vendor consults for bracing and w/c seating options
• Document observations of type and level of family support
• Recognize changes indicating a decline in medical status and/or medical emergency; communicate changes with appropriate medical personnel using relevant medical terminology
Role of PTA
Communication, Coordination, Documentation

• Report subjective and objective information which may indicate poor patient compliance with blood sugar regulation/DM management
• Request referral/recommend medical or community-based psychosocial support for adjustment to disability (e.g., pending surgical amputation, effects of prolonged bed rest, etc)

Thanks!
Remember, there is always time to breathe, eat, and move!