Osteonecrosis and Orthopedic Late Effects in Pediatric Cancer

Combined Section Meeting 2015

Indianapolis, IN
February 4-7, 2015

SPEAKERS:

Brian DeFeo, PT, DPT; St. Jude Children’s Research Hospital, Memphis, TN
Terry Wilson, PT, MS; St. Jude Children’s Research Hospital, Memphis, TN
DISCLOSURES:

Speakers Brian DeFeo and Terry Wilson have no conflict of interest to disclose.

COURSE DESCRIPTION:

Cancer and its treatment can affect the immature skeletal system of children and adolescents during treatment and into survivorship. During this course, the speakers will present various orthopedic impairments encountered across the continuum of care in a variety of pediatric cancer diagnoses. Topics to be discussed include osteonecrosis and orthopedic late effects such as osteopenia and fibrosis. Physical therapists in many areas of practice will encounter a client with a history of pediatric cancer and these orthopedic impairments must be considered during assessment and intervention.

This 2 part course will describe musculoskeletal late effects among childhood cancer survivors, and discuss the state of the evidence for physical therapy intervention guidelines and other various interventions designed to remediate these musculoskeletal impairments. The pathology and evidence based management of osteonecrosis will be extensively described to begin the session, followed by an overview of other skeletal late effects that occur in survivors of pediatric cancer.

LEARNING OBJECTIVES

Upon completion of this course, you will be able to:

1) Define the pathology of osteonecrosis, understand the theories of its etiology, and identify associated risk factors among the pediatric population.

2) Gain insight into the importance for early and appropriate assessment for osteonecrosis, available options for its management, and rehabilitation implications.

3) Identify the most common musculoskeletal late effects experienced by persons who were treated for a childhood onset malignancy.

4) Discuss potential physical therapy and pharmaceutical interventions designed to remediate musculoskeletal impairments among persons who were treated for a childhood onset malignancy.
CONTENT

Session Outline:

Part I: Osteonecrosis: 45 min, 15 min questions. Speaker – Brian DeFeo

1. Osteonecrosis
   a. What is it?
   b. Terminology and etiology
   c. Risk factors
      i. Oncology – ALL
      ii. Corticosteroid use
      iii. Stem cell transplantation
      iv. Hematology – sickle cell disease
   d. Natural history
   e. Risk factors within a Pediatric Oncology population

2. Assessment
   a. Imaging
      i. MRI vs. x-ray
      ii. Early predictors of osteonecrosis
   b. Staging
      i. Steinberg I-IV
      ii. Severity grading

3. Osteonecrosis of the femoral head
   a. Patient presentation
   b. Research
   c. Intervention
      i. Conservative and surgical management
      ii. Hip core decompression
   d. Functional outcomes and ongoing research
      i. ONFUNC

4. Osteonecrosis of the Knee
   a. Patient presentation and case examples
   b. Treatment options
      i. Conservative vs. surgical management
      ii. Osteoarticular allograft
      iii. Post-op Rehab

5. Osteonecrosis at other sites and Ongoing Research
   a. Allopurinol’s potential role in the development of osteonecrosis
   b. Bone marrow aspiration as an early detector of osteonecrosis

6. Questions and panel discussion
Part II: Orthopedic Late Effects – Time 45 min, 15 min questions. Speaker – Terry Wilson

7. Epidemiology of survivorship
   a. Incidence and survival rates
   b. Spectrum of Health-related and Quality of Life Outcomes
   c. Issues impacting cancer treatment associated morbidity

8. Skeletal late effects
   a. Low bone mineral density (osteopenia)
      i. With history of chemotherapy and radiation
      ii. Physical therapy intervention

9. Muscular late effects
   a. Weakness
      i. With history of chemotherapy and radiation
   b. Fibrosis
      i. What is radiation-induced fibrosis (RIF)
      ii. The 3 phases of RIF
      iii. Treatment for RIF
   c. Scarring

10. Growth disturbances
    a. Axial skeletal deformities
       i. The effects of cranial and spinal irradiation
    b. Appendicular Skeletal deformities
       i. History of chemotherapy
       ii. History of radiation therapy

11. Interventions
    a. Exercise
       i. ACSM Guidelines
       ii. Contraindications and Recommendations
    b. Dietary Supplements
    c. Whole-Body Vibration

12. Questions and panel discussion
REFERENCES:


16. Steinberg ME, Larcom PG, Strafford B, Hosick WB, Corces A, Bands RE, Hartman KE. Core This information is the property of DeFeo–Wilson and should not be copied or otherwise used without express written permission.


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