MANAGING FUNCTION AND QUALITY OF LIFE IN HEAD AND NECK CANCER SURVIVORS

Michael D. Stubblefield, M.D.

Medical Director for Cancer Rehabilitation – Kessler Institute for Rehabilitation
National Medical Director for ReVital Cancer Rehabilitation – Select Medical
Clinical Professor, Department of PM&R – Rutgers New Jersey Medical School
American Board of Physical Medicine & Rehabilitation
American Board of Electrodiagnostic Medicine
American Board of Internal Medicine

Kessler Institute for Rehabilitation
ReVital Cancer Rehabilitation
Living well beyond cancer™
DISCLOSURES

• Editor: Cancer Rehabilitation – Principles and Practice
• Avid photographer (Yes, all the photos are mine!)
OBJECTIVES

• Describe the issues that compromise function and quality of life in HNC survivors.

• Understand how these issues can affect you and your loved ones.

• Empower you to obtain a proper diagnosis.

• Develop a plan to comprehensively manage the issues you may face.
TREATMENT OF HEAD AND NECK CANCER

• Surgery
• Systemic Therapy
• Radiation Therapy
TYPES OF NECK DISSECTION
PRINCIPLES OF RADIATION THERAPY
PRINCIPLES OF RADIATION THERAPY

- Uses energy to cause DNA damage
  - Photons or Protons
- Alone or combined with chemotherapy and/or surgery
- Side effects
  - Short term (days – weeks)
  - Long term (months – years)
PHOTONS vs. PROTONS

DEPTH DISTRIBUTION OF ENERGY

DOSE (%)

Bragg peak

Delivered radiation dose to tissues outside of the tumour during conventional radiation

Tumour

PHOTONS

PROTONS
INTENSITY MODULATED RADIATION THERAPY (IMRT)

The intensity of radiation beams is modulated with a system of movable leaves called a multi-leaf collimator which conforms to the shape of the tumor and block out unwanted radiation.

IMRT ISODOSE CURVES
RADIATION FIBROSIS SYNDROME
“Radiation fibrosis (RF) describes the insidious pathologic fibrotic tissue sclerosis that often occurs in response to radiation exposure.”

“The term Radiation Fibrosis Syndrome (RFS) describes the myriad clinical manifestations of progressive fibrotic tissue sclerosis that result from radiation treatment.”
RADIATION FIBROSIS RISK FACTORS

- **Treatment-related Factors**
  - Radiotherapy
    - Total dose
    - Dose per fraction
    - Volume of radiation
    - Time from radiation
    - Tissue type
    - Prior radiation
    - Local surgery
    - Neurotoxic chemotherapy

- **Patient-related Factors (“protoplasm”)**
  - Physiological status
  - Comorbidities
    - Cardiovascular disease
    - Collagen vascular disease
    - Degenerative disease
  - Pre-existing PNS dysfunction

Pradat PF, Delanian S. Late radiation injury to peripheral nerves. Handbook of clinical neurology 2013;115:743-58.
TISSUE SENSITIVITY TO RADIATION

Total Dose (Gy) to cause 50% complication risk at 5 years

“It’s tough to make predictions, especially about the future.”

Yogi Berra
PROSPECTIVE REHABILITATION (PROhab®) IN HNC

- Baseline comorbidities
  - SAN mononeuropathy
  - Shoulder dysfunction
  - Cervical dystonia
  - Trismus
  - Dysphagia/dysarthria
  - Lymphedema
  - Neuralgia
- CIPN
- Gait dysfunction
- ADL impairment
- Fatigue
- Cognitive impairment
- Lymphedema

- Myelo-radiculo-plexo-neuro-myopathy
- Dropped head syndrome
- Osteonecrosis
- Depression/anxiety
TRISMUS

• Trismus is defined as the inability to fully open the mouth

• ≤35mm cut-off point for defining trismus has a sensitivity of 0.71 and a specificity of 0.98

• Patients with trismus may have difficulty with eating, speaking, maintaining oral hygiene, being surveyed for cancer recurrence, engaging in oral intimacy, or a variety of other important aspects of daily life

• The incidence of trismus may be as high as 28% in HNC patients 1 year after treatment


CERVICAL DYSTONIA
DROPPED HEAD SYNDROME
A 57 year old man with largely right sided nasopharyngeal carcinoma diagnosed in 2002 and treated with 5-Fu and IMRT 7020 cGy to the primary disease and neck now with right sided cervical dystonia and mild to moderate upper trunk brachial plexopathy.
LYMPHEDEMA

- Often underdiagnosed and neglected
- Can be external (face, neck, chest) or internally (larynx, pharynx, oral cavity)
- Has adverse cosmetic and psychosocial consequences (infections, breathing or swallowing difficulties, etc.)
- Diagnosed on clinical grounds (external) or by endoscopic evaluation (internal)
- 75.3% of HNC patients have secondary lymphedema
  - 9.8% isolated internal lymphedema
  - 39.4% isolated external lymphedema
  - 50.8% combined internal and external lymphedema


OCCUPATIONAL THERAPY

• What is Occupational Therapy (OT)?
  • As defined by the American Occupational Therapy Association
    • The practice of occupational therapy means the therapeutic use of everyday life occupations with persons, groups, or populations (clients) to support occupational performance and participation.
    • Occupations are dressing, bathing, gardening, yardwork, golfing, birdwatching and photography
HOW CAN OT HELP WITH RECOVERY?

- Lymphedema Treatment
- Manual Therapy
- Range of Motion
- Strength
- Coordination
- Posture
- Improve overall Quality of Life
LYMPHEDEMA TREATMENT

• 4 components of effective Complete Decongestive Therapy
  • Exercise
  • Skin Care
  • Manual Therapy
  • Compression
• When to seek Lymphedema Treatment
EFFECTIVE EVALUATION AND TREATMENT

• Manual Therapy
  • Soft Tissue
  • Myofascial

• Range of Motion
  • Upper Extremity Range of Motion
  • Neck
  • Shoulder blades

• Strength
  • Shoulder
  • Grip Strength
EFFECTIVE EVALUATION AND TREATMENT

• Coordination
• Posture
• Assessment of daily activities and quality of life
BRITTANY BOYNTON, M.S., CCC-SLP

THE ROLE OF SPEECH LANGUAGE PATHOLOGY
REHABILITATION

Role of the Speech-Language Pathologist

• Assess swallowing function – clinical swallow evaluation, instrumental swallow assessment (e.g. MBSS, FEES)
• Swallowing therapy
• Oral-motor exercises
• Compensatory strategy training for speech and swallowing deficits
• Myofascial Release for radiation fibrosis/scarring
• Use of speech generating devices
• Education regarding aspiration risks and how to manage risk
SWALLOWING IMPAIRMENT, OR “DYSPHAGIA”

• Difficulty swallowing due to damaged structures resulting in weakness and reduced range of motion
• Aspiration
• Poor swallowing efficiency
• Dry mouth
• Pain during chewing/swallowing
• Malnutrition/dehydration
DYSPHAGIA MANAGEMENT

• Oral Phase:
  • Oral motor exercises
  • Modify textures

• Pharyngeal Phase:
  • Swallowing exercises
  • Modify diet level
  • Use compensatory strategies or maneuvers
HOW TO OPTIMIZE FUNCTION

• Follow up with SLP regularly
• Get a yearly swallow test
• Do home exercises regularly
• Comply with the recommended diet consistency and use trained strategies
• Use good oral hygiene
• Use safe swallowing strategies/precautions
• Monitor for sign/symptoms of aspiration and report to SLP/physician
DRY MOUTH, OR “XEROSTOMIA”

- One of the most common complications during/after RT
- Irreparable damage to salivary glands, which are included in the radiation field
- Difficulty eating dry or hard foods
- Mastication and manipulation of food may be uncomfortable
- Taste changes
- Difficulty with speech
- Increased risk of infection and dental compromise
MANAGEMENT OF DRY MOUTH

• Prevention:
  • Cytoprotectants: can protect normal tissue against the toxic effect of radiotherapy and/or chemotherapy
  • Salivary gland-sparing RT
  • Salivary gland transfer

• Treatment:
  • Stringent oral hygiene
  • Use of fluoride agents and antimicrobial
  • Saliva substitutes
  • agents to stimulate saliva production
HOW TO OPTIMIZE FUNCTION

• Ask your radiation oncologist if you are a candidate for preventative techniques
• Work with SLP or dental oncologist
• Trial and error: try out different dry mouth products to determine which one works best for you
• Keep water with you
• Use saliva substitutes/stimulants
• Keep saliva substitutes handy
• Good oral hygiene
• Modify food textures
SPEECH/VOICE IMPAIRMENTS

Dysarthria: speech disorder caused by muscle weakness
• Difficulty moving tongue, lips or jaw
• “Slurred” or “mumbled” speech
• Speaking too slow/too fast
• Nasality

Dysphonia: voice disorder caused by vocal cord dysfunction with multiple underlying causes
• Changes in vocal quality
• Difficulty controlling pitch
• Difficulty controlling volume
MANAGEMENT OF SPEECH/VOICE IMPAIRMENTS

SPEECH:
• Oral-motor exercises
• Compensatory strategy training with SLP

VOICE:
• Voice exercises to improve vocal cord function
• Work on breath support
• Education on vocal hygiene

AUGMENTATIVE/ALTERNATIVE COMMUNICATION
HOW TO OPTIMIZE FUNCTION

EXERCISE:
• Tongue, lip and voice exercises

COMPENSATE:
• Use speech strategies
• Use speech generating devices or apps
CONCLUSION

- Recognize that radiation is “the gift that keeps on giving.”
- Stay in front of expected issues.
- Remember that radiation can contribute to medical issues in unexpected ways.
- Cultivate your team— MD, PT, OT, SLP, others.
- The goal is not cure, but optimization – **advocate to live your best life!**
Michael D. Stubblefield, M.D.

(201) 396-7651

mstubblefield@selectmedical.com

Kessler Institute for Rehabilitation
1199 Pleasant Valley Way
West Orange, NY 07052

www.revitalcancerrehab.com