Nutrition Focused Physical Examination: Overview and application

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Objectives:

Identify advances in clinical assessment and management of selected healthcare issues related to persons with developmental disabilities

Notes:
OVERVIEW

Malnutrition
Nutrition-Focused Physical Exam
Documentation and Application

HOSPITAL MALNUTRITION IS WIDESPREAD

• ASPEN (American Society of Parenteral and Enteral Nutrition), Nov 2013, JPEN
  • Multiple studies find that approximately one in every three adult patients admitted to a hospital in the United States is suffering from malnutrition

PEDiatric MALnurition

• Reported a prevalence of 6%–51% in hospitalized children.
• However, it is well known that a gap exists between diagnosing malnutrition in hospitalized patients and actually coding for it.

IMPACT OF HOSPITAL MALNUTRITION

• Morbidity and Mortality
  • Development of pressure ulcers
  • Reduced muscle mass → decreased strength/ debility → risk of falls
  • Nosocomial infections
  • Quality of life
• Increased length of stay (LOS)
• Readmission and Institutionalization
• Cost

Consensus Statement: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: Characteristics Recommended for the Identification and Documentation of Adult Malnutrition (Undernutrition)

Jane V. White, PhD, RD, PADA; Peggi Guenter, PhD, RN; Gordon Jensen, MD, PhD, FASPE; Ainsley Malone, MS, RD, CNSC; Marsha Schofield, MS, RD - the ASPEN Malnutrition Work Group, the ASPEN Malnutrition Task Force, and the ASPEN Board of Directors.
NO SINGLE PARAMETER IS DEFINITIVE FOR ADULT MALNUTRITION

- MUST MEET AT LEAST 2 OF THE 6 CRITERIA FOR DIAGNOSIS:
  - Insufficient energy intake
  - Weight loss
  - Loss of muscle mass
  - Loss of subcutaneous fat
  - Localized or generalized fluid accumulation (that may sometimes mask weight loss)
  - Diminished functional status as measured by hand-grip strength

White et al. 2012

Special Report

Consensus Statement of the Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition: Indicators Recommended for the Identification and Documentation of Pediatric Malnutrition (Undernutrition)

Priscilla Rodgers, MS, RD, CSP, LDN; CNCG; Linda Norman-Carney, RD, CSP, LDN; Mark R. Futterman, RPh, CNS, LAS, NPS; Sue K. Mengel, MD, LIP, CNCG

Englewood, NJ; MS, RD, LDN, CNS; Susan E. Smith, MS, RD, LDN, CNS; Michigan Academy of Nutrition and Dietetics; American Society for Parenteral and Enteral Nutrition

m1tool© = Michigan's Inalnutrition diagnostic tool

NO SINGLE PARAMETER IS DEFINITIVE FOR PEDIATRIC MALNUTRITION

- Food/Nutrient Intake
  - Assessment of Energy and Protein Needs
  - Growth Parameters / Anthropometric Measurements:
    - Percentiles/z-scores
    - Weight for age
    - Height/length for age
    - BMI/weight-for-length for age
    - Weight Gain Velocity
    - Mid-Upper Arm Circumference (MUAC)
    - Handgrip Strength
    - Nutrition-Focused Physical Findings

NUTRITION-FOCUSED PHYSICAL EXAM

PART OF THE NUTRITION CARE PROCESS

NUTRITION CARE PROCESS

Nutrition Assessment

Monitoring & Evaluation

Nutrition Diagnosis

Nutrition Intervention

NUTRITION ASSESSMENT

Food/Nutrition-Related History

Biochemical Data, Medical Tests and Procedures

Anthropometric Measurements

Nutrition-Focused Physical Findings

Client History

4/7/2016
**NUTRITION-FOCUSED PHYSICAL EXAM**

**GETTING STARTED:**
- Prepare for patient interaction
- Standard and universal precautions
- Physical exam techniques:
  - Inspection—close observation
  - Palpation—tactile examination
  - Percussion—elicit a sound wave
  - Auscultation—listening to body sounds

**OVERALL APPEARANCE/ FIRST IMPRESSIONS**

- The NFPE begins with a general observation of the patient.
- First impression and physical characteristics to note during interview:
  - What is the apparent state of health?
  - What is the level of consciousness?
  - Does the patient show signs of physical distress?
  - How is the patient dressed?
  - Do you see any obvious signs of nutrient deficiencies?
  - Is there any involuntary movements or signs of paralysis?

**OVERALL APPEARANCE/ FIRST IMPRESSIONS**

- Body positioning (muscle contractures, paralysis)
- Body Language
- Body habitus
- Amputations
- Ability to communicate
- Affect

**ASSESSING FOR MUSCLE LOSS**

- Regions to assess:
  - Upper body:
    - Temple
    - Collar bone
    - Shoulder
    - Shoulder blade
    - Hand
  - Lower body:
    - Thigh/Knee
    - Calf

**ASSESSING FOR MUSCLE LOSS**

- Temporalis

**ASSESSING FOR MUSCLE LOSS**

- Clavicular region:
  - Pectoralis major, deltoide, trapezius muscles
ASSESSING FOR MUSCLE LOSS

Shoulder region:
Deltoid muscle

Anterior thigh/
patellar region:
Quadriceps femoris group

Posterior calf:
Gastrocnemius
and soleus

Scapular region:
Infraspinus,
deltoid, supraspinatus

Hand:
Interosseous muscle

ASSESSING FOR MUSCLE LOSS

ASSESSING FOR MUSCLE LOSS

ASSESSING FOR MUSCLE LOSS

ASSESSING FOR FAT LOSS

Regions to assess:
- Orbital region (orbital fat pads)
- Upper arm region (triceps brachii)
- Mid-axillary at the iliac crest
- Ribs
ASSESSING FOR FAT LOSS

• Orbital region (orbital fat pads)

ASSESSING FOR FAT LOSS

• Upper arm: triceps brachii

ASSESSING FOR FAT LOSS

• Mid-axillary, just above the iliac crest

ASSESSING FOR FAT LOSS

• Ribs

ASSESSING FLUID STATUS

• Edema
  - Definition: abnormal retention of fluid in interstitial spaces and cavities
  - Commonly found: ankles, feet, sacrum, scrotum, vulva
• Ascites
• Anasarca

ASSESSING FLUID STATUS

Etiology:
- When plasma proteins are depleted, there is decreased oncotic pressure (colloid osmotic pressure), and thus increased capillary filtration. This results in increased fluid accumulation in the interstitial spaces (edema).
- Several common conditions are associated with fluid accumulation. Rule these out before using fluid retention as a malnutrition criteria.
  - CHF
  - Kidney disease
  - Liver disease
  - Lymphatic obstruction
  - Critical illness

Image: Nicholas Horace (Photographer) [Public domain], via Wikimedia Commons
ASSESSING FLUID STATUS

PITTING EDEMA:
- Excess interstitial fluid
- Presence of pitting
- If pressure is applied for at least 5 seconds
- No universally agreed upon definition of grades
- Typically classified as 1+ (mild) to 4+ (severe)
- Useful for relative changes

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Impression</th>
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<tbody>
<tr>
<td>1+</td>
<td>Barely detectable depression</td>
<td>1 mm</td>
</tr>
<tr>
<td>2+</td>
<td>Slight indentation – 1.5 seconds to rebound</td>
<td>3 mm</td>
</tr>
<tr>
<td>3+</td>
<td>Deeper indentation – 3-5 seconds to rebound</td>
<td>5 mm</td>
</tr>
<tr>
<td>4+</td>
<td>&gt;30 seconds to rebound</td>
<td>8 mm</td>
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</tbody>
</table>

- Image: Litchfield 2013

ASSESSING FLUID STATUS

HYDRATION:
- Skin turgor/elasticity
- Skin tenting

- Objective measures:
  - Vital signs
  - Intake/output
  - Weight
  - Fluid may mask weight and/or muscle loss
  - History
  - Urine concentration
  - Imaging
  - Appearance:
    - Skin/Mucous membranes


ASSESSING FLUID STATUS

Physical Exam - Parameters Useful in the Assessment of Nutritional Status

- Source: Academy of Nutrition and Dietetics.
“Nutrition-Focused Physical Findings” may be used as a heading in your chart notes.

- Sub-heading may include: Overall appearance; Body language; Cardiovascular-pulmonary system; Extremities, muscles and bones; Digestive system (mouth to rectum); Head and eyes; Nerves and cognition; Skin; Vital signs.

- May use your findings in your PES statement; can support/strengthen a diagnosis of malnutrition.

- Academy of Nutrition & Dietetics

PES Statement Examples:
- Malnutrition (severe) related to inadequate enteral infusion as evidenced by reduced energy intake <75% of estimated energy needs for >1 month, subcutaneous fat loss in the triceps region, and temporal and clavicular muscle wasting.
- Malnutrition (severe) related altered GI function (gastroparesis) as evidenced by unintentional weight loss of 14% of body weight in the past 6 months, and the physical signs of fat loss, muscle loss, hair loss, and angular stomatitis.

PES Statement Example (pediatric):
- Malnutrition (chronic, moderate) related to malabsorption due to history of short bowel syndrome as evidenced by weight for age Z-score more than 2 SD below the norm (at -2.35), BMI Z-score more than 2 SD below the norm (at -2.25), MUAC more than 2 SD below the norm (at -2.01), and signs of decreased muscle mass.

- Academy of Nutrition & Dietetics

PES Statement:
- Problem related to Etiology as evidenced by Signs & Symptoms

- MALNUTRITION
- (Acute or Chronic) (Mild, Moderate, Severe)
- related to:
  - (decreased energy intake, increased energy expenditure, increased nutrient loss)
  - due to illness, dietary intake, socioeconomic factors, medication

Nutrition Assessment
CARE PROCESS
Nutrition Diagnosis
Monitoring & Evaluation
Nutrition Intervention

NUTRITION CARE PROCESS
PROPER IDENTIFICATION OF HOSPITAL MALNUTRITION

- Early identification and appropriate nutrition interventions lead to:
  - Morbidity and Mortality
  - Development of pressure ulcers
  - Reduced muscle mass & d increased strength & debility & risk of falls
  - Nosocomial infections
  - Quality of life
  - Length of stay (LOS)
  - Readmission and Institutionalization
  - Cost
  - Potential for increased reimbursement with malnutrition as a comorbid/complicating condition.

NUTRITION-FOCUSED PHYSICAL EXAMINATION

WHERE CAN I LEARN MORE?

FOR MORE INFORMATION...

- Academy of Nutrition and Dietetics Nutrition Focused Physical Exam Hands-On Training Workshops.
- NFPE Workshop at Rutgers Department of Nutritional Sciences, Institute of Nutritional Interventions, Newark, N.J.

REFERENCES

QUESTIONS?
Thank you!