Presented by:
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Protein Malnutrition
Nutritional Management in Various Patient Populations

A Historical Perspective

Malnutrition is not a new problem.
The "skeleton in the hospital closet" was brought to light in Butterworth’s call for practices aimed at proper diagnosis and treatment of malnourished patients.


What is Protein-Energy Undernutrition (PEU)?

Formerly called Protein-Energy Malnutrition.
Energy deficit due to chronic deficiency of all macronutrients

White J et al. / Advan Nutr Diet 2012.

Six Characteristics of PEU

1. Weight loss
2. Insufficient energy intake
3. Loss of subcutaneous fat
4. Loss of muscle mass
5. Localized or generalized fluid accumulation
6. Diminished functional status- measured by hand-grip strength

A minimum of two characteristics is recommended for diagnosis.

ICD-9 Codes

Cause the resident to be coded on the MDS into at High Risk for PU Development:

<table>
<thead>
<tr>
<th>ICD-9 Codes</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>260</td>
<td>Kwashiorkor</td>
</tr>
<tr>
<td>261</td>
<td>Nutritional marasmus (children)</td>
</tr>
<tr>
<td>262</td>
<td>Other severe, protein-calorie malnutrition</td>
</tr>
<tr>
<td>263.0</td>
<td>Malnutrition of moderate degree</td>
</tr>
<tr>
<td>263.1</td>
<td>Malnutrition of mild degree</td>
</tr>
<tr>
<td>263.2</td>
<td>Arrested development following protein-calorie malnutrition</td>
</tr>
<tr>
<td>263.8</td>
<td>Other protein-calorie malnutrition ( unspecified, but not listed above 260-263.2)</td>
</tr>
<tr>
<td>263.9</td>
<td>Unspecified protein-calorie malnutrition</td>
</tr>
<tr>
<td></td>
<td>Dystrophy due to malnutrition Malnutrition (calorie) NOS</td>
</tr>
</tbody>
</table>


Why this Information is Important

MESSAGE FROM MDS Coordinator:
"Mary- please determine if Don still has an active problem with Protein/calorie nutrition, as this is still on his active diagnosis list.

If this is to be considered, not a current active problem, please let Susie in medical records know that she can move this to his history on his diagnosis list.”

Thanks,
Deb
Values Commonly Used to Grade the Severity of Protein-Energy Undernutrition

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Normal weight (%)</th>
<th>Normal</th>
<th>Mild Undernutrition</th>
<th>Moderate Undernutrition</th>
<th>Severe Undernutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal weight (%)</td>
<td>90-110</td>
<td>110</td>
<td>75-110</td>
<td>&lt;75</td>
<td></td>
</tr>
<tr>
<td>Body mass index</td>
<td>19-24</td>
<td>24</td>
<td>16-18.9</td>
<td>&lt;16</td>
<td></td>
</tr>
<tr>
<td>Serum albumin (g/dL)</td>
<td>3.5-5.0</td>
<td>5.0</td>
<td>3.1-3.4</td>
<td>&lt;2.4</td>
<td></td>
</tr>
<tr>
<td>Serum transferrin (mg/dL)</td>
<td>220-400</td>
<td>400</td>
<td>201-219</td>
<td>&lt;150</td>
<td></td>
</tr>
<tr>
<td>Total lymphocyte count (per mm3)</td>
<td>2000-3500</td>
<td>3500</td>
<td>1501-1999</td>
<td>&lt;800</td>
<td></td>
</tr>
<tr>
<td>Delayed hypersensitivity index **</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

*In the elderly, BMI <21 may increase mortality risk.
**Delayed hypersensitivity index uses a common antigen (e.g., one derived from Candida sp or Trichophyton sp) to quantify the amount of induration elicited by skin testing. Induration is graded: 0=<0.5 cm, 1=0.5-0.9 cm, 2>=1 cm, 3=1.0 cm.

From a Dietitian Listserv….

“We have a new administrator at one of my facilities. The corporate policy states to get an albumin & pre-albumin monthly until a wound is healed. She absolutely believes this is what is to be done to stay out of trouble with the surveyors. I’m sure it could get us in more trouble, as the albumin/pre-albumin doesn’t improve no matter what our interventions. I’ve addressed this with various personnel to no avail, so I thought I’d try with the new administrator. She actually said since labs were not in my scope of practice she wasn’t included to change anything. She said the doctors were the ones for whom labs were important. Next time I’m in the facility, I’ll take her a copy of "Our scope of practice.”

Definition of Albumin

Not to be confused with Albumen: The white of an egg, the part of the egg from which meringues are made. ‘Albus’ in Latin means white.

“Albumin” is the main protein in human blood and the key to the regulation of the osmotic pressure of blood.

Recent Evidence Analysis Shows...

Serum proteins:
- Albumin and Pre-albumin
  - Do not define malnutrition
  - Do not change in response to improved nutrient intake

As one RD said...

“After All, for the Well-Ordered Mind, Serum Proteins Tell Us Nothing We Do Not Already Know”

Adapted from an RDN who reads a lot of Harry Potter
From a Dietitian Listserv….

“I had a patient admitted for rehab from assisted living. She is dealing with multiple illnesses. She has a NAS low protein diet order. Her historical diagnoses are cirrhosis (non-alcoholic), encephalopathy, CKD with anemia, metabolic acidosis, depression and auto immune hepatitis. I know we don’t use the albumin to determine nutritional status anymore, but it is 1.8; labs otherwise are unremarkable. I was wondering if I should get this diet changed.”

Goal: Quell the Inflammatory Process

Nutritional status cannot improve until this occurs

<table>
<thead>
<tr>
<th>Body weight</th>
<th>Weight change</th>
<th>Appetite</th>
</tr>
</thead>
</table>

Then What Could Happen?

- Increased falls
- Longer admit rates
- Increased readmit rates
- Increased treatment costs
- Increased mortality

Continued Emerging Evidence-Based Science

Clearly Defines Omega-3 Fatty Acids as a Prominent Player in the Anti-Inflammatory Process

Beneficial effects of Omega-3s:

- Cardiac
- Bone
- Joint
- Skin
- Liver
- Brain/cognition

Nutrition Risk Identified

Compromised intake or loss of body mass

Then What Could Happen?

- Increased falls
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Pre-Admission Info for a Short-term Med-A Stay

Dr. Note: Hosp acquired Pneumonia. Unsure if this is a bacteria Pneumonia. Swallow eval indicates dysphagia. Pt is coughing & dyspneic. In Droplet Isolation (I believe this is standard protocol for Pneumonia). IV Zosyn, Vanco, Levo, to be tapered down to PO Levo only. Also – Hypovolemia (IV fluids & Lasix on hold), Anemia (rec’d Venofer & Transfused), ARF, Orthostatic Hypotension (better on Midodrine), Hypercalcemia, Severe Protein Malnutrition w/ poor app, lethargic, A&Ox2.

RN & PT Notes: c/o Back Pain. Oriented but Tired – requested to get back in bed after standing exercise.

Two Questions:

What is the nutritional problem?  
How can I help you?

Meet Peter

Admitting Diagnosis: Protein Calorie Malnutrition

ICD-9 Code

262: Other Severe Protein Calorie Malnutrition

• 112 Pounds
• Significant weight loss past 6 months
• BMI 17
• 68 Inches
• Albumin = 2.9
• Total Protein 5.2
• Serum transferrin 125
• Total lymphocyte count 700

Meet Mary: What You See is NOT What You Get

• 60 inches
• 81 pounds
• Multiple co-morbidities
• Albumin = 4.1 (3.5-5.2)
• Total protein = 7.4 (6.1-8.2)
• Dehydrated meeting 25% of Fluid needs
• BMI=16
• Severe PEU

Meet Paul

• 148#s
• 74 Inches
• Albumin = 3.4
• Total Protein 5.8
• BMI:18.9
Nutrition Risk Identified
Compromised intake or loss of body mass

Inflammation present?
No
BMI in moderate
Yes

Starvation-related Malnutrition
(pure chronic starvation, anorexia nervosa)

Chronic Disease-related Malnutrition
(End Stage COPD, sarcopenia)

Acute Disease- or Injury-related Malnutrition
(major infection, burns, trauma, closed head injury)

F-Tag 325 Nutrition

Current Thinking
• Most nursing home residents are at risk for malnutrition
• They may need a targeted solution diet

Liberalized Diet
• Can enhance the quality of life
• Improve nutritional status
• It’s no longer the exception, it’s the rule!


“JUST FEED THEM CINDY” - Chef

“This can be a very simple business, but that does not mean it’s easy”

“But honey, how can I eat when I can’t eat?”

– Ellen, 101 years old

Real Food First

ADA/AND: Research suggests the goal of food service is to create a meal situation as natural and independent as possible, comparable with eating at home.

Stringent diet restrictions limiting familiar foods and eliminating or modifying seasonings may contribute to poor appetite; decreased food intake, increased risk of illness, infection and weight loss.

CMS:
With any nutrition program, improving intake via wholesome foods is generally preferable to adding nutritional supplements.
A Wound Can Look Like an Iceberg

The Scaffolding Effect and the Power of Nutrition

Vitamin A
Vitamin C
Multivitamin
Zinc
Conditional Indispensable Amino Acids
Indispensable Amino Acids
Hydrolyzed Collagen Protein

The scaffolding protein structure necessary for wound healing

Stage 3: The power of hydrolyzed modular proteins

Medical Foods

Foods that are specially formulated & processed for the patient/resident who is seriously ill or who requires the product as a major treatment modality

Criteria:
- Oral or tube feeding
- Labeled for the dietary management of a specific medical disorder, disease, or condition for which there are distinctive nutritional requirements
- Intended to be used under medical supervision

http://www.cfsan.fda.gov/~dms/medfguid.html

Protein Hydrolyzation

Defined: Complete breakdown of protein molecules.

Breaks the protein down to its elemental absorbing unit (di-peptides and tri-peptides). By doing this, the protein is not denuded or degraded in the stomach.

Proteins which are pre-digested, have the large protein molecules already hydrolyzed (broken down) to increase absorption and assimilation.

Heavy burden of PEU on the patient & HCPs

- Impaired wound healing
- Immune suppression
- Increased infection rate
- Muscle wasting
- Functional loss

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Rehospitalization
Defined: Readmission within the first 30 days after discharge

Loss of weight and decreased blood albumin levels after discharge are strong predictors of readmission within 30 days.

Largest study of greater than 10,000 consecutive admissions reported a readmission rate of 17%.

Readmissions
In a large study of 1,442 patients with a readmit rate of 11%, the most common reasons for readmission were:

- GI problems / complications (28%)
- Surgical infections (22%)
- Failure to thrive / malnutrition (10%)

Factors Associated with Post Hospital Syndrome

- New medications
- Cognition changes
- Immobility
- GI Upset
- Constipation
- Mental Health Changes
- Increased Level of Stress

Dramatically increases the risk of a 30 day readmit; Often for reasons other than the original diagnosis.

Post Hospital Syndrome is at the Heart of High Readmission Rates

Fact:
Nearly 1/5 of Medicare patients (over 65y) who discharge from the hospital develop post hospital syndrome.

Organizational strategies for the use of medical foods in your facility:

Evidence based organizational practices have a greater potential to affect numerous residents than implementing anecdotal strategies implemented by a single clinician.

What is Post Hospital Syndrome?
Defined: An acquired condition of vulnerability or wear and tear on the body just by being in the hospital.

Poor nutrition can contribute to post hospital syndrome.


TOOLS TO USE

Suggestions For Increasing Calories and Protein

- Enhance Dining skills and Environment
- Liberalize Diet

Other Resources:
- www.Nutrition411.com
- www.BeckyDorner.com

FINAL THOUGHTS ON DIETITIANS AND LEADERSHIP

"LEADERSHIP DOESN'T SOLELY COME FROM THE TOP DOWN, IT IS A SHARED RESPONSIBILITY"

-Sylvia Escott-Stump, MA, RD, LD
2011 ADA president

RDN'S DO NOT STAND ALONE (LIKE A SILO) AS A MEMBER OF THE HEALTHCARE TEAM
“KEY LEADERSHIP ATTRIBUTES ARE COMPETENCE, CONFIDENCE, RISK-TAKING, AND NOT JUST COMPETENT, ACCURATE, AND SAFE PRACTITIONERS, BUT LEADERS.”

- Carol Porter, Ph.D, RD, FADA
Director of Department of Nutrition and Food Service, UCSF Medical Center

The Future Needs of the Public
Dietetic professionals are challenged daily and we have a unique opportunity to meet it.

Thank you and Questions

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