TOPICS IN CLINICAL NUTRITION

Stresa - Grand Hotel Bristol 25-27 Settembre 2014

IMMUNONUTRIZIONE PERIOPERATORIA IN CHIRURGIA PROTESICA D’ANCA

Paolo Avagnina
Sara Diberti
**Background**

Protein–energy malnutrition (PEM) prevalence in hip fracture inpatients is estimated as more than half in a number of studies, with a reported range of 6% to 78%. This substantial variance may be the result of lack of criterion standards for malnutrition screening.

*Curr Opin Clin Nutr Metab Care* 2011;14:425–433

**Surgery** induces an inflammatory response that can become excessive and damaging in some patients. The major risk factors are pre-existing PEM and increasing levels of surgical stress. Immunonutrition upregulates host immune response, modulates inflammatory response, and improves gut oxygenation after surgery.

*Curr Opin Clin Nutr Metab Care* 2012, 15:485–488
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AOU San Luigi Gonzaga
SCDU ORTOPEDIA E TRAUMATOLOGIA
Dir.: Prof. Alessandro Massé

Year 2013: 245 cases of elective hip arthroplasty
M: 110 – F: 135 mean age 70 ± 14

Curr Opin Clin Nutr Metab Care 2012, 15:485–488
The Frank Stinchfield Award Paper. Nutritional assessment of orthopaedic patients undergoing total hip replacement surgery


High incidence of nutritional depletion among hospitalized patients.

50% incidence of subclinical nutritional depletion at preoperative assessments.

Nutritional assessment is of value in the diagnosis, treatment, and continuing evaluation of the orthopaedic patient.

Appropriate nutritional support needs to be more widely disseminated to and evaluated in this population.

Supportive nutrition therapy may offer the best prospect for immediate and substantial improvement in patient
Nutritional care: the effectiveness of actively involving older patients

Preben Ulrich Pedersen RN PhD

Background: protein and energy malnutrition and deterioration in nutritional status is a common but neglected problem in hospital patients.

Aims: to test the effectiveness of nursing care based on active involvement of patients in their nutritional care. It was hypothesized that this type of care could improve energy and protein intake in elder orthopaedic patients.

Conclusions: active involvement in their own nutritional care, was found to be an effective method to raise the intake of energy and protein among elder orthopaedic patients.

242 Patients
m.a. 76y (range 65-97)
M vs F = 1:3

112 emergency admission
(fractured neck of femur)

88 elective surgery
(total hip or knee replacement)
Prevalence of protein-energy malnutrition in hospital patients over 75 years of age admitted for hip fracture

S Brevet, C Bioteau, S Mazière et al

50 Patients
m.a. 86.1 y (± 4.4) - M vs F = 1:2

Aims: …to determine the prevalence on MNA of PEM in pts aged > 75 y admitted for HF; to identify factors associated with PEM and its role as a factor of evolution.

Conclusions: …a high prevalence of PEM in over-75 years old HF pts, longer MHS in case of PEM; little PEM screening performed in surgical dpts.
The high prevalence of PEM and the associated increase in MHS, require early prevention and treatment.

Daily calorie and protein supplementation should be prescribed as an easily implemented strategy.
DISEGNO DELLO STUDIO (pilota)

Obiettivo primario
• valutazione dello stato nutrizionale e dei relativi fabbisogni

Obiettivo secondario
• valutazione degli effetti di una supplementazione orale arricchita con immunonutrienti su decorso clinico e outcome dei Pazienti

TIPOLOGIA DELLO STUDIO
Monocentrico a due bracci, caso-controllo, randomizzato, in chiaro

Entrambi i bracci di studio sono stati sottoposti a valutazione
• nutrizionale (peso corporeo, indici bioumorali: albumina, transferrina, glicemia) Screening (NRS)
• anamnesi alimentare (one day recall)
• calcolo della spesa energetica e del fabbisogno nutrizionale
• counselling nutrizionale ove ritenuto necessario

Al primo braccio (caso) viene fornito un supplemento orale* quotidiano arricchito con Proteine (36 g), Arginina (8,4 g), Omega 3 (2,8 g), RNA (0,86 g) per un totale di 668 kcal, da assumere nei 5 giorni precedenti l’intervento.

* Impact oral® Nestlé: 2 brick/die per 5gg

CRITERI DI INCLUSIONE
• Età > 65 anni per entrambi i sessi
• Candidati in elezione a chirurgia protesica d’anca
Reclutamento: Pre-ricovero ortopedia, ca 10 gg prima della data prevista per l’intervento

Provenienza: AOU San Luigi - SCDU Ortopedia e Traumatologia (Dir.: Prof. A. Massé)

Controlli (33)
- F 20 / M 13
- m.a. 73 (range 65-85)

Casi (33)*
- F 22 / M 11
- m.a. 74 (range 65-82)

- Peso
- Altezza
- BMI
- Karnofsky
- Proteine tot
- Albumina
- Transferrina
- Karnofsky
- NRS
- Fabbisogni proteico calorici
- Anamnesi alimentare pre-intervento
- Anamnesi alimentare post-intervento
- GG ricovero

* Impact oral ® Nestlé : 2 brick/die per 5gg
### Proteine totali (g/dl)

- **Controlli**: 6.8
- **Casi**: 7.2

### Albumina (g/dl)

- **Controlli**: 3.8
- **Casi**: 3.9

### Transferrina (mg/dl)

- **Controlli**: 244
- **Casi**: 249

### Tabella

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<th>I.K.</th>
<th>IMC</th>
<th>NRS (&lt; 3)</th>
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<tbody>
<tr>
<td>&gt; 60 &lt; 70</td>
<td>27</td>
<td>26</td>
<td>100 %</td>
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<tr>
<td>&gt; 60 &lt; 70</td>
<td>26</td>
<td>26</td>
<td>97 %</td>
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Anamnesi alimentare

Introito calorico medio (one day recall)

Controlli
- Pre-intervento: 1669 Kcal/die
- Post-intervento: 1676 Kcal/die

Casi
- Pre-intervento: 1762 Kcal/die
- Post-intervento: 1740 Kcal/die

Fabbisogno calorico medio
(Harris-Benedict)

- 1775 Kcal/die

* Student t-test for paired data (p<0.05 = N.S.)
Anamnesi alimentare

Ripartizione dei lipidi e dei carboidrati (one day recall)

Controlli

- Lipidi pre: 56 g/die (v.m.)
- Lipidi post: 64 g/die (v.m.)
- I.C. pre: 216 g/die (v.m.)
- I.C. post: 209 g/die (v.m.)

Casi

- Lipidi pre: 71 g/die (v.m.)
- Lipidi post: 68 g/die (v.m.)
- I.C. pre: 205 g/die (v.m.)
- I.C. post: 200 g/die (v.m.)
Controlli

Anamnesi alimentare

Ripartizione delle proteine (one day recall)

Fabbisogno proteico-calorico medio
(Harris-Benedict)

P> 0.001*

P> 0.001*

56
64
54
66
78

* Student t-test for paired data (p<0.05 = N.S.)
** Student t-test for unpaired data (p<0.05 = N.S.)
Risultati 5

Controlli: P > 0.03*

Costo integrazione p.e arricchita con immunonutrienti
80 €/Pz

Costo medio per 1 giornata di ricovero
450 €/Pz

* dati non parametrici Mann-U-Whitney
Take home

- High incidence of nutritional subclinical protein-energy depletion among elderly patients addressed to elective surgical hip arthroplasty is found.

- **Nutritional assessment is mandatory** in the diagnosis, treatment, and continuing evaluation of these, like other, orthopaedic patients and is strongly recommended to be focused on protein-energy requirements.

- Appropriate protein-energy nutritional support and counselling needs to be more widely disseminated to and evaluated in this population.

- Immuno-nutrient enriched diet may offer a good prospect for improvement of clinical outcome when provided to the select patients subpopulations.

- Further studies are needed................................