Nutritional Challenges in Feeding the Elderly

Malnutrition in the Elderly – Prevalence, Causes and Corrective Strategies

*Dorothe Volkert*
Malnutrition in the elderly – prevalence, causes and corrective strategies

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Nutritional status - malnutrition risk factors - nutritional intervention
### SENECA Study

Prevalence of under- and overweight in community-living, healthy elderly in Europe

First examination 1989

<table>
<thead>
<tr>
<th></th>
<th>BMI&lt;20</th>
<th>BMI≥30 kg/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>5 % (0-15)</td>
<td>18 % (8-43)</td>
</tr>
<tr>
<td>Women</td>
<td>6 % (0-17)</td>
<td>28 % (4-56)</td>
</tr>
</tbody>
</table>

Final examination 1999

<table>
<thead>
<tr>
<th></th>
<th>BMI&lt;20</th>
<th>BMI≥30 kg/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>4 % (0-12)</td>
<td>20 % (8-32)</td>
</tr>
<tr>
<td>Women</td>
<td>7 % (0-14)</td>
<td>20 % (10-46)</td>
</tr>
</tbody>
</table>

(n=2600, age 70-75 y.; n=620, age 80-85 y.)

### Nutritional status of geriatric patients
judged by Subjective Global Assessment (SGA)

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Size</th>
<th>Age Range</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covinsky et al. (JAGS 1999)</td>
<td>n=369, age ≥70 y.</td>
<td>24 %</td>
<td>16 %</td>
<td></td>
</tr>
<tr>
<td>Ek et al. (Scand J Caring Sci 1996)</td>
<td>n=90, age 83±6 y.</td>
<td>27 %</td>
<td>21 %</td>
<td></td>
</tr>
<tr>
<td>Incalzi et al. (JAGS 1996)</td>
<td>n=302, age 79±6 y.</td>
<td>37 %</td>
<td>19 %</td>
<td></td>
</tr>
<tr>
<td>First author</td>
<td>n</td>
<td>age [y.]</td>
<td>BMI [kg/m²]</td>
<td>prevalence</td>
</tr>
<tr>
<td>------------------</td>
<td>----</td>
<td>----------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>Gamez (1998)</td>
<td>82</td>
<td>81±8</td>
<td>&lt;20</td>
<td>10 %</td>
</tr>
<tr>
<td>Elmstahl (1987)</td>
<td>30</td>
<td>Ø 83</td>
<td>&lt;20</td>
<td>17 %</td>
</tr>
<tr>
<td>Saletti (2000)</td>
<td>166</td>
<td>84±8</td>
<td>≤20</td>
<td>33 %</td>
</tr>
<tr>
<td>Nordenram (2001)</td>
<td>192</td>
<td>84±8</td>
<td>≤20</td>
<td>49 %</td>
</tr>
<tr>
<td>Rudman (1995)</td>
<td>34</td>
<td>Ø 75</td>
<td>&lt;20</td>
<td>50 %</td>
</tr>
</tbody>
</table>
Nutritional status according to MNA in institutionalized elderly

Saletti et al, Gerontology 46 (2000) 139-45

MNA = Mini Nutritional Assessment
SF = service flat
OPH = old people’s homes
GLD = group living for the demented
NH = nursing home
BMI ≤ 20

Number of subjects in brackets

>23 p. well nourished
17-23 p. risk of malnutrition
<17 p. malnutrition

BMI ≤ 20

SF (349)        OPH (261)        GLD (96)        NH (166)

BMI ≤ 20 18% 25% 19% 33%
Prevalence of risk factors for malnutrition in healthy elderly (n=50) and geriatric patients (n=300) aged 75 years or older

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Healthy Elderly</th>
<th>Geriatric Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor appetite</td>
<td>14 %</td>
<td>26 %</td>
</tr>
<tr>
<td>Chewing problems</td>
<td>20 %</td>
<td>50 %</td>
</tr>
<tr>
<td>Dysphagia</td>
<td>10 %</td>
<td>18 %</td>
</tr>
<tr>
<td>Problems cutting food</td>
<td>16 %</td>
<td>42 %</td>
</tr>
<tr>
<td>Being homebound</td>
<td>0 %</td>
<td>49 %</td>
</tr>
<tr>
<td>Dementia</td>
<td>0 %</td>
<td>37 %</td>
</tr>
<tr>
<td>Depression</td>
<td>8 %</td>
<td>12 %</td>
</tr>
<tr>
<td>Stressful life event</td>
<td>34 %</td>
<td>22 %</td>
</tr>
<tr>
<td>Loneliness</td>
<td>0 %</td>
<td>27 %</td>
</tr>
</tbody>
</table>
Vicious cycle of malnutrition

**AGING**
- Social problems
- Psychological problems
- Physical disabilities
- Mental disabilities
- Financial restraints

**DISEASE**
- Appetite ↓
- Dietary intake ↓
- Bioavailability ↓
- Nutritional needs not met
- Body weight ↓
- Nutritional status ↓
- Immune status ↓

**Nutritional needs not met**

**Dietary intake ↓**

**Bioavailability ↓**

**Appetite ↓**

**Difficulty in shopping, cooking, preparing meals**

**Poor eating habits**
**Unhealthy food selection**
Cascade in the development of malnutrition

Stage 1
Risk factors
• Dentition, immobility, dementia, depression, disease, drugs ...

Stage 2
Dietary intake ↓ and/or requirements ↑

Stage 3
Nutritional Status ↓
• Clinical, anthropometric, biochemical indices

Stage 4
Health outcome ↓
• Functional status, morbidity, mortality

Interventions

Assessment
Nutritional intervention

Improvement of food & care

- Between-meal snacks (Musson 1990, Gall 1998)
- Compliance with preferences (Kondrup 1998, Simmons 2001)
- Modified pureed food (Cassens 1996)
- Decentralized food portioning (Shatenstein 2000)
- Verbal prompting (Lange-Alberts 1994, Coyne 1997, Simmons 2001)
- Provision of feeding assistance (Simmons 2001)
- Individualized care (Sidenvall 1993, Gants 1997, Christensson 2001)
- Improvement of environment (Elmstahl 1987, Mathey 2001)