Malnutrition - Life style - a nutritional problem

Nutrition and Life style in elderly

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Nutrition and life style in the Elderly

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• Session:
• Life style – a nutritional problem
A very “Hot topic”
Why? (1)

- People in many countries are growing rapidly older (21% of the western population is older than 60 years*).
- Elderly people need more health care and more medical support.
- Governments and insurance companies are under a heavy load of health expenses.

* Vogt W. Schweiz Rundsch Med Prax 2005
Malnutrition is common among elderly individuals *
MLN is a frequently under–diagnosed condition among elderly.
Malnutrition is an expensive disease with high morbidity / mortality

Why ? (3)

- Malnutrition has a negative impact on Quality of Life (QOL).
- Chronical illness + polipharmacy + malnutrition can be a deadly combination.
Do not Forget:

• A healthy old person’s health cost is much more “inexpensive” than a sick one.

• As nutritionists and MD’s, we have the responsibility to care for our elderly people before they get sick.

• This is the easy, ethic and cost–effective way for caring elderly.
Life style – a nutritional problem

• We have to discuss:
  Definition of “Old Age”
  Pathophysiology of old age
  Healthy or unhealthy life style
  Malnutrition
  Outcome of Life style/ Malnutrition
Goal:

• Early detection and aggressive intervention of malnutrition for “To arrest the downward spiral” in elderly
  - Screening tools for PEM
  - Nutritional therapy of PEM

Prevalence of PEM in Elderly

(1)

• Ambulatory elderly persons: 15 %
• Homebound patients: 5 – 44 %
• Hospitalized patients: 20 – 65 %
• Nursing home residents: 23 – 85 %

Prevalance of PEM in Elderly

(2)

• In-nursing home and in–hospital PEM is frequently getting worse!
  (iatrogenic PEM can be cured effectively!!!)

• Folate deficiency is very common
  (~75%)* → HIGH HOMOCYSTEINE levels

• Vitamin D deficiency is very common (88% below 30 ng/ml in Norway)**

* Hatzis CM. Nutr J. 2006
** Geisler J. European J Cancer. 2006
Causes of MLN. in Elderly

I- Anorexia of aging (Decline of physical activity, decline of resting metabolic rate $\rightarrow$ Decrease in food intake)

II- Pathological anorexia and weight loss

III- Anorectic drugs
Physiological Anorexia of Aging (1)

- Lean body mass and percentage of body fat declines after the age of 70
- Older patients consume 55% less fat and 40% less carbohydrate than younger individuals
- Older persons fail to develop sensory-specific satiety
Physiological Anorexia of Aging (2)

- The feeling of “Hunger” is defective in older persons
- Sense of tasting is blunted (Gustotory papillae atrophy)
- Marked decline in the ability of “Smell”
- Opioid receptors are reduced (Important for feeding drive)
Physiological Anorexia of Aging (3)

- Cholesystokinin levels are increased (Probably the most important neuropeptid for feeding drive)
- Gastric emptying is delayed (Leading to early satiety)
Causes of Pathological Anorexia and PEM in Elderly (1)

• Social causes
  * Poverty – expensive medications are overpowering natural food
  * Inability for shopping, cooking or self-feeding
  * Cognitive function impairs (Less response to caregivers’ advices)
  * Self-neglecting*

* Pavlou MP. J Am Geriatr Soc. 2006
Causes of Pathological Anorexia and PEM in Elderly (2)

• Psychological causes
  * Depression (assoc. with CRF releasing → Anorexia)
  * Dementia (Forgetting to eat, excessive wandering, apraxia of swallowing)
  * Mania
  * Paranoia
  * Insomnia
Causes of Pathological Anorexia and PEM in Elderly

• Physical causes
  * Hypermetabolism (Thyrotoxicosis)
  * Anorexia (Drugs)
  * Swallowing difficulties (Stroke)
  * Malabsorption (Pancreatic insufficiency, Chronic gastritis and vascular insufficiency)
Causes of **Pathological Anorexia and PEM in Elderly** (4)

- Physical causes
  - Chewing / masticating problems *
  - Xerostomia *
  - Stroke *
  - Tremor, Parkinson disease *
  - Arthritis (Inability to use hands) *
  - Infections (Especially pulmonary) *
  - Drugs *

* Soini H. J Nutr Health aging 2005
Causes of Pathological Anorexia and PEM in Elderly (5)

- Physical causes
  * Vitamin and mineral deficiencies
    (For example Mg deficiency causes depression, dementia, osteoporosis, deficiency in peroxidation capability, erroneous DNA functions)*

* Saito N. Clin Calcium. 2005
Anorectic drugs

- Digoxin
- Theophylline
- NSAID
- Fluoxethine
- Phenothiazines
- Diuretics (Causing water and electrolyte depletion)
Our study for “Chewing problems”

N : 145 (Over 55 years old), 80 female

• With SGD 60 % were well-nourished
• With MNA 38 % were well-nourished
• Low educational status was correlated with the number of missing the teeth.
Our study for “Chewing problems”

• Chewing ability decreased when missing teeth were more than 20 (p = 0.001)

• Relationship between MNA and “Number of missing teeth” and “Chewing function” was better correlated than SGA
Diagnosing PEM (1)

- Weight loss (5 kg in 6 months; Strong indicator)
- Changes in appetite
- Chronic illness
- Acute illness (Nutritional requirements increase)
- BMI (24 –29 is optimal for elderly)
Diagnosing PEM (2)

- Anthropometric methods (Calf circumference is more reliable for muscle mass, skin-fold thickness over scapula is more reliable for body fat)
- Calf circum. < 31 cm = MLN *
- Individual follow-up data are superior to isolated measurements *

* Bauer JM. Dtsch Med Wochenschr 2006
Diagnosing PEM (3)

- Laboratory evaluation
  - **Albumin** (Not usable in acute illness)
  - **Prealbumin**
  - **Low cholesterol levels** (< 160 mg/dl) = low lipoprotein levels = low visceral protein
  - **Total lymphocyte count** (< 1500 cells/mm³)
  - **Vitamin levels** (B12, folate, D* [More than 75% of elderly have low vit D levels]....)

* Dixon T. Curr Med Res Opin. 2006*
Diagnosing PEM (4)

- Screening tools
  * Mini-nutritional assess. (MNA) Does not require laboratory tests, very accurate
  * Instant nutritional assess. (INA)
  * SGA
  * DETERMINE check list
  * MLN risk scale (SCALES)
Complications of PEM

- Reduced life performance, functional decline
- Delayed wound healing
- Hip fractures (assoc. with low vit D levels)*
- Pressure ulcers (Low dietary protein intake)**

* Simonelli C. Minn Med. 2005
** Domini LM. J Nutr Health Aging 2005
Complications of PEM (2)

- Cognitive impairment
- Postural hypotension
- Infections *
- Anemia

* Paillaud E. Age Ageing. 2005
Complications of PEM (3)

• Higher rates of delirium in hospitalized patients

• Prolonged length of stay in hospital → Complications – higher MORTALITY rates *

• Primary disease and PEM helping each other for developing irreversible multiple organ failure (Circulus vicousus)

* Kagansky N. Am J Nutr. 2005
Life style – Influencing factors

- Some of the factors can be changed, but some of them can’t:
  - Being alone
  - Being poor
  - Incorrectible sight problems
  - Smoking (Affects also oral health conditions)*
  - Low educational level (Problems in learning the healthy life style)

* Koyama Y. Nippon Eiseigaku Zasshi. 2006
Life style – Influencing factors

- Alcohol abuse (Moderate alcohol intake is good for the Brain*)
- Depression
- Lack of physical activity and exercise (Regular exercise delays the onset of dementia and Alzheimer disease **, ***)
- Dementia

* Simons LA. Med J Aust. 2006
** Larson EB. Ann Intern Med. 2006
*** Wang L. Arch Intern Med. 2006
Life style – Influencing factors

Sarcopenia → Loss of muscle mass and function → Physical activity ↓ → Risk of falls↑, Fracture risk↑, glucose tolerance ↓,
Body temperature regulation ↓*
Therefore: Regular physical activity is important, delays sarcopenia to some degree **

* Serra R. Nutr Hosp 2006
** Yano J. J UOEH 2006
Life style – Influencing factors

• Tooth loss (insufficient chewing *)
• Loss of taste (Xerostomia)
• Loss of smell
• Difficulties in preparing food
• Less absorption of nutrients
• Chronic illness (Congestive heart failure, DM, Renal failure, etc.)

* Our own unpublished data (Available among posters)
** Muller F. Z Gerontol Geriatr. 2005
Management of PEM (1)

- PREVENTION is the simplest way
- Early detection
- Prompt treatment
- Recognizing reversible and treatable causes
- Trying to change unhealthy lifestyle habits
- Attending day care improves QOL and PEM *

Management of PEM (2)

- Treat hypovolemia
- Treat depression
- Eliminate anorexogenic drugs
- Eliminate dietary restrictions as much as possible
- If possible deliver hot meals with feeding assistance at home
- Treat dysphagia (Thickened liquids, correcting wrong swallowing behaviour)
Management of PEM (3)
Commonly encountered reversible causes (1)

- Avoid Polipharmacy (Including too much antioxidant vitamins)*
- Treat Alcoholism (Occasional wine drinkers have a lower mortality rate!) **
- Treat Swallowing disorders (Speech neurologist)
- Treat Poor dentition
- Try to stop Smoking
- Encourage physical and mental exercise***

*Saner H. Ther Umsch 2005
*** Capodaglio P. Eur J Appl Physiol. 2006
Management of PEM (4)
Commonly encountered reversible causes (1)

• Treat Hyperthyroidism, hypothyroidism
• Treat Hyperparathyroidism
• Treat Hypoadrenalism
• Treat Vitamin deficiencies (Especially group B and vitamin D: Vitamins group B, can also decrease homocysteine levels in elderly*)
• Treat Anemia (Can be cured with vit. B12)**

*Flicker L. Stroke. 2006
**Andres E. J Nutr Health Aging. 2006
Management of PEM (4)
Commonly encountered reversible causes (2)

• Treat Prostate hypertropy (Sleep interruptions)
• Treat Menopausal symptoms and potential complications (Prophlaxis of fragile bones)
• Try to treat Malabsorption (Atrophic gastritis causes B12 deficiency)*

* Dholakia KR. World J Gastroenterol 2005
Help when: Inability to feed themselves*
Avoid Therapeutic diets
Try to treat Cognitive impairment (Cause → high homocysteine levels: Treat with folate and vit B12)**
Try to keep Dementia under control (Excessive wandering and paranoia)
Treat Infections

* Soini H. J Gerontol Nurs. 2006
** McCaddon A. Nutr J. 2006
Management of PEM \(^{(6)}\)

- Add Oral caloric and protein suppl. (Especially in hospitalized patients, mortality can be reduced)*
- Start Tube feeding for in-hospitalized patients (Attention to aspiration pneumonia)
- Start Parenteral feeding for patients in ICU (Peripheral or central) (Indication only in acute illness)

* Milne AC. Ann Intern Med. 2006
Management of PEM (7)

- Tube feeding + peripheral IV feeding (Most commonly used method for ICU patients)
- Elderly with high homocysteine levels should be supplemented with vit B12 and folate
- Many patients also need vit D. supplementation. Because prevalence of deficiency is very high (Up to 90 %)*

* Hashemipour S. J Bone Miner Metab. 2006
Management of PEM (7)

- Drugs:
  - **Metoclopramide** (Treats early satiation and anorexia but worsens parkinsonian symptoms)
  - **Duranobinol** (Antiemetic, promotes food intake)
  - **Testosterone** (Increases muscle mass)
Conclusion (1)

- PEM is an important, frequently seen and life threatening problem among elderly people
- It is frequently underestimated by physicians
- PEM is a serious menace for low QOL
- PEM can be treated
Conclusion (2)

• “Unhealthy” Life style is also a problem for developing many diseases and PEM

• Changing life style is sometimes like “teaching new tricks to old dogs”

• Physicians and other caregivers should still give all their effort to change unhealthy life style
Conclusion (3)

- Prophlaxis of PEM is cheaper than treatment
- The negative effect of “Vitamin deficiencies” are probably more serious than we realize it
- Many patients with PEM get worse during hospitalization. This condition is not acceptable.