Parenteral Nutrition in Palliative Care of Cancer Patients

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“Palliative care relieves suffering and improves quality of life of the living and the dying” (D Walsh, Palliative Medicine, Saunders 2009)
HPN in cancer patients in Europe*

- Low frequency (<10%): Denmark, UK
- Intermediate frequency (10-50%): Spain, France, Belgium
- High frequency (>50%): Netherlands, Italy

* F Bozzetti, M Staun, A Van Gossum
Home Parenteral Nutrition, CAB International 2006
How to explain discrepancy for recommending HPN in different Institutions?

• Guidelines are inconsistent because:
  - data are controversial
  - grade A recommendations are missing because RCTs in aphagic pts are not ethically possible

• PN is a *therapy* according to many scientific societies, but is an *essential support* according to the view of many patients, relatives and other non-scientific Institutions and opinion leaders
PN in incurable cancer patient: therapy, support or something in between?

PN is a therapy

- Drug is any chemical agent which affects living processes (Goodman & Gilman 1941)
- Physicians prescribe PN
- Physicians and medical societies consider nutrition as a therapy
- PN is a medical therapy for ill people
- It should be validated by RCT

PN is a support

- Also “natural” nutrition affects living processes (Paradoxically all humans got intrauterine PN)
- Dietitians prescribe PN in USA and patients and relatives often ask for it
- Nourishment is viewed by the relatives as an act of love and care
- Nutrition is essential both to ill and healthy people
- It is ethically impossible to have a no-PN arm and hence a GRADE A recommendation
PN in the incurable patient

Two opposite positions

- Cancer patients may die with the tumour, but not because of the tumour

- Patients with benign intestinal failure survive thanks to PN, cancer patients die despite PN
A pragmatic approach: two main questions

• Does HPN prolong survival in the aphagic incurable cancer patient?

• Does HPN affect quality of life?
A pragmatic approach: two main questions

• Does HPN prolong survival in the aphagic incurable cancer patient?

• Does HPN affect quality of life?
Potential role of PN in incurable cancer patients

- Not in the imminently dying patient
- In some aphagic patients who are expected to die from starvation prior than from tumour progression and have an acceptable quality of life
Natural history of patients with inoperable malignant obstruction

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>N. pts</th>
<th>Mean survival, days</th>
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<tbody>
<tr>
<td>Tunca</td>
<td>1981</td>
<td>27*</td>
<td>33</td>
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<tr>
<td>Piver</td>
<td>1982</td>
<td>11*</td>
<td>60</td>
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<tr>
<td>Kreb</td>
<td>1983</td>
<td>14*</td>
<td>&lt;30</td>
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<td>Gemlo</td>
<td>1986</td>
<td>27</td>
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<td>Baines</td>
<td>1985</td>
<td>40</td>
<td>87</td>
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<td>Rubin</td>
<td>1989</td>
<td>11*</td>
<td>54</td>
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* Ovarian cancer
## Natural history of pts with inoperable malignant obstruction receiving symptomatic agents

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>N. pts</th>
<th>Mean survival, days</th>
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<tr>
<td>Hardy</td>
<td>1998</td>
<td>39</td>
<td>75</td>
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<td>Laval</td>
<td>2000</td>
<td>58</td>
<td>41</td>
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<td>Ripamonti</td>
<td>2000</td>
<td>17</td>
<td>11</td>
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<td>Mercadante</td>
<td>2000</td>
<td>18</td>
<td>2-37</td>
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<tr>
<td>Mystakidou</td>
<td>2002</td>
<td>68</td>
<td>7-61</td>
</tr>
</tbody>
</table>
Survival of healthy subjects under total macronutrient deprivation

63 days (BW loss 41%)°

57-73 days (BW loss 40%)°°

° American taylor starver

°° Irish hunger strikers
Survival of cancer patients on HPN

<table>
<thead>
<tr>
<th>Author</th>
<th>N° PATIENTS</th>
<th>SURVIVAL</th>
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</thead>
<tbody>
<tr>
<td>Howard 1993</td>
<td>1672</td>
<td>28% at 1 yr; median/mean 6/4 mos</td>
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<tr>
<td>Howard 1995</td>
<td>2122</td>
<td>37% at 1 yr</td>
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<tr>
<td>Messing 1998</td>
<td>524</td>
<td>19.5% at 6 mos</td>
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<tr>
<td>Van Gossum 1997</td>
<td>200</td>
<td>26% at 6-12 mos</td>
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<tr>
<td>Howard 2000</td>
<td>1073</td>
<td>25% at 1 yr; median 6 mos</td>
</tr>
<tr>
<td>SINPE Register 2004</td>
<td>1103</td>
<td>20% at 1 yr; median 6 mos</td>
</tr>
</tbody>
</table>
Fig 2  Box and whisker plot of actual survival for various prediction categories. The black boxes indicate the interquartile range of actual survival, and the white bar is the median survival for that prognostic category. The whiskers are drawn to 1.5 times the interquartile range, which would represent the 99.65 centile if the data were normally distributed, although they are not. Points beyond that range are drawn individually.
A pragmatic approach: two main questions

• Does HPN prolong survival in the aphagic incurable cancer patient?

• Does HPN affect quality of life?
CONTRIBUTION of DISEASE and NUTRITION to QoL of H&N and GI CANCER PTS *(Ravasco et al 2004)*

QoL scores

- 30% cancer site
- 20% CT, surgery, stage...
- 30% WL
- 20% Nutritional intake
Quality of Life in cancer patients on HPN

- KPS increased in 7% of pts after 1 month and in 68% after 3 months (Pironi 1999, Cozzaglio 1997)

- Capability to sustain daily activities improved in 27% of patients (Torelli 1999)

- Full rehabilitation at 1 year in 31% of patients (Howard 1993)
Quality of life and length of survival in advanced cancer on HPN
Bozzetti F., Cozzaglio L., Biganzoli E. et al.

69 (sub)obstructed patients on HPN

Parameters of evaluation

• nutritional status
• survival
• KPS
• Rotterdam Symptom Checklist Questionnaire
  (39 questions on psychological and physical status and level of activity)
RESULTS

• Median survival 4 months (r. 1-14)
• One third survived > 7 months
• Nutritional indexes stable until death
• QoL scores declined 2-3 months before death
EXPECTED BENEFIT ON SURVIVAL OF HPN IN APHAGIC CANCER PATIENTS

Survival of healthy people during total starvation:
- 63 days (BW loss 41%)°
- 57-73 days (BW loss 40%)°°

Survival of patients with malignant obstruction usually < 2 months

Survival of aphagic cancer patients on HPN°°°:
- 73% at 2,1/2 months (30% at 6-7 months)
- median: 4 months

Acceptable QoL till 2-3 months before death

° American taylor starver
°° Irish hunger strikers
°°° SINPE 1997
CURRENT INDICATIONS FOR A HPN PROGRAMME

- Unable to eat mainly for GI (sub)ostruction
- Life expectancy due to the cancer >3 mos (?)
- No or minimal involvement of vital organs and no functional organ deterioration
- No pleural or peritoneal effusion
- PS =/>50
- Absence of important and/or poorly-controlled symptoms
- Previous consent of the patient&relatives to modify and substantially reduce the nutritional regimen should a functional deterioration occur
ESPEN HAN WG Protocol in incurable cancer patients on HPN

Aims

to define predictive factors for survival >3 and >6 mos

Variables

nutritional, clinical, oncological, biochemical

Centres

9 (Italy, Spain, Poland, Germany, Denmark, UK, Canada)

Status

> 200 patients enrolled (analysis in the 2011)