What Are the Goals of Nutritional Support?

The Example of Home Enteral Nutrition

Xavier Hébuterne and Stéphane M. Schneider

Gastroenterology and Clinical Nutrition, Archet 2 Hospital, Nice, France

Artificial nutrition is a supportive medical therapy aiming at achieving predefined objectives, which should be adjusted for changing clinical situations [1]. The goals of nutritional support must be clearly predefined within a global therapeutic plan. First of all it is necessary to determine whether nutritional support is a medical treatment or basic human care. If it is considered a medical treatment, the goal of this treatment is to improve some parameters related to disease progression and/or malnutrition (considered as a disease). For the latter the goal of nutritional support is only to provide nutrients to patients unable to reach their nutritional requirements. However, it appears that nutritional support per se may be harmful and it seems inappropriate to provide artificial nutrition when the burdens of this treatment outweigh its benefits. For this reason we believe that nutritional support must be considered as a treatment. Therefore, clear and loyal evaluation of the risk/benefit ratio must be done. A recent survey from the ESPEN Home Artificial Nutrition Group [2] has demonstrated that in Europe home enteral nutrition (HEN) is mainly prescribed for dysphagic patients with neurological disorders or cancer, using a standard feed via percutaneous endoscopic gastrostomy (PEG). However, there were important differences between the countries regarding the underlying diseases and age of patients [2]. In the two national registers available in Europe, similar differences were observed. In the UK, during the period 1996–1999, only 146 patients with head and neck cancer where on HEN, compared to 5,037 with cerebrovascular disease [3]. In Italy, during the period 1992–1999, of the 7,111 patients examined 1,900 suffered from head and neck cancer and 1,647 from cerebrovascular disease [4]. Moreover, the use of HEN is approximately two to three times lower in Europe than in the US [2]. There is no evidence that the differences observed between European centers and between Europe and the US are
related to differences in expertise in artificial nutrition, training centers, or to local variations in the incidences of certain diseases. Inter-country differences appear to be due to recognized differences in medical practice. We believe that the clear determination of the goals of nutritional support may be helpful to evaluate the rationale of starting nutritional support at a patient level. Several goals may be achieved; some of them are necessary, other may be optional. The main questions should be the following:

1. Will nutritional support be well tolerated by my patient?
2. Will nutritional support improve or sustain the nutritional status of my patient?
3. Will nutritional support improve or sustain the quality of life of my patient?
4. Will nutritional support improve the outcome and extend the survival of my patient?

As there are many clinical situations we will take the example of HEN to answer these questions.

**Will HEN Be Well Tolerated by My Patient?**

Tolerance of artificial nutrition is essential because adverse effects may affect the predefined goals of nutritional support. Before discharging a patient from the hospital ward on long-term HEN, it is essential to verify the tolerance of nutritional therapy in the hospital during at least 7 days. In some cases, enteral nutrition (EN) and/or gastrostomy are responsible for complications that alter the prognosis and reduce the expected benefits. Procedure-related mortality due to PEG is in the region of 0.5–1%, with major and minor complications occurring in about 9 and 6% of cases [5]. Major complications include wound-related problems (major infections, septicemia, dehiscence), aspiration, peritonitis, hemorrhage, tube dislodgement and respiratory failure. Minor complications include stomal soreness and minor infections, stomal leakage, tube blockage and gastrointestinal upset. In a recent study [6] we prospectively assessed complications and 1-month mortality after PEG in patients selected by a nutrition team. 106 PEG tubes were placed in 70 men and 36 women aged 63 (22–93) years. The indications were dysphagia in 92 patients (53 neurological disorders, 37 head and neck tumors, 2 traumas), and anorexia in 14 patients. There were 33 minor complications in 30 patients, which all resolved under symptomatic treatment: abdominal pain (n = 11); local infection (n = 6); hyperthermia (n = 5); peristomal pain (n = 3); leakage (n = 3); intestinal obstruction (n = 3); buried bumper syndrome (n = 1), and tube dislodgement (n = 1). However, 13 major complications occurred in the first 30 days in 13 patients (12.3%). Ten patients had pneumonia (aspiration pneumonia was confirmed in 3 cases), which was fatal in 6 cases and resolved in 4 cases. Two patients had peritonitis.
(fatal in 1 case and resolved with surgery in 1 case), and 1 patient had severe gastric bleeding which resolved under medical treatment. Sixteen patients (15.1%) died during the 1st month after the procedure. In 9 cases death was probably due to the initial disease whereas in 7 cases it was possibly induced by intervention (in 6 cases due to nosocomial pneumonia and in 1 case due to peritonitis). In another study PEG was proposed to 46 nursing home residents with a mean age of 74 years (52% had dementia). Authors observed 34 complications related to tube feeding in 16 patients (35% of patients) with tube obstruction (30% of patients), tube migration (17%), buried bumper syndrome (6.5%), wound infection (4.3%), and aspiration pneumonia occurred in 20% of the patients [7]. In a 11-month period 70 tube-fed patients aged 65–95 years were studied prospectively. In patients with a nasogastric tube, agitation and self-extubation occurred in 67% and aspiration pneumonia in 43%. In PEG patients the most common early problem was aspiration (44%) [8]. Tolerance of EN and/or PEG is greatly dependent on the condition of the patient. Several factors have been shown to be associated with a high level of complications and early mortality after PEG (table 1) and should be considered. In cases of severe malnutrition it may be useful to feed the patient via a nasogastric tube during 2–3 weeks prior to inserting a PEG tube.

**Table 1.** Factors associated with high risks of complications and/or early mortality after PEG

<table>
<thead>
<tr>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &gt;80 years</td>
</tr>
<tr>
<td>Dementia</td>
</tr>
<tr>
<td>BMI &lt;16.5</td>
</tr>
<tr>
<td>Recent bronchopulmonary infection</td>
</tr>
<tr>
<td>Albuminemia &lt;30 g/l</td>
</tr>
</tbody>
</table>

Will HEN Improve or Sustain the Nutritional Status of My Patient?

HEN is generally considered for patients with oral failure. We recommend oral failure as a new criteria for choosing and deciding the enteral route of nutrition. To date, symmetrical to intestinal failure, we define oral failure as the inappropriate and involuntary reduction in the oral intake below the minimal amount necessary for the maintenance of energy-protein equilibrium. There is no doubt that in a patient with severe or total dysphagia EN will be able to provide nutrients and sustain nutritional status indefinitely. In our experience [9] 5.5% of HEN patients are indefinitely dependent and maintain their nutritional status with HEN (table 2). Nutritional support is clearly indicated when adequate food intake is not possible for long periods. In patients with permanent neurological impairment, or oropharyngeal dysfunction, and in premature infants, long-term nutritional support is needed to prevent death from starvation.
The nutritional effect of EN is well demonstrated. Cyclic EN has been shown to improve nutritional parameters [10] as well as body composition [11]. This effect has also been observed in patients with moderate intestinal failure such as gastrectomy or pancreatectomy [12]. In children with Crohn’s disease, it has been shown that home nocturnal nasogastric feedings can achieve a dramatic improvement in weight gain and linear growth [13]. However, the nutritional effect of EN is dependent on the patient’s condition. In a study of 97 middle-aged and elderly undernourished patients we have demonstrated that cyclic EN (with similar protein and energy amounts) was more effective in younger patients than in the elderly and that the recovery from malnutrition was more difficult in the elderly than in young people [10]. Moreover, in the elderly, after 4 weeks of intensive enteral feeding, the probability of not failing (to be alive and in remission) at 1 year was only 25% (95% confidence interval 1–52%) when during the last week of re-nutrition, oral energy intakes were lower than the resting energy expenditure, and 80% (95% confidence interval 65–95%) when oral energy intakes were higher than the resting energy expenditure (p < 0.0001; fig. 1). The practical consequences of this finding are that if a patient is able to resume normal oral intake during EN, it probably will not be necessary to continue nutritional support. However, if oral intake is still under the requirements after a period of 2–4 weeks of tube feeding, the prolongation of EN is mandatory. In this case a PEG should be discussed with the patient and/or his/her family [14]. Restoration of normal oral intake is an important goal in tube feeding. In our experience [9] 33% of HEN patients were able to resume full oral nutrition after a mean of 6 months HEN (table 2). If we analyze the long-term outcome of elderly patients on HEN for primary or secondary anorexia (without dysphagia or digestive disease), 56% of them will resume full oral nutrition

### Table 2. Long-term outcome of home enteral nutrition patients

<table>
<thead>
<tr>
<th></th>
<th>Indefinitely HEN-dependent</th>
<th>Resumed full oral nutrition</th>
<th>Died during the 1st month of HEN</th>
<th>Died after the 1st month of HEN</th>
<th>Off HEN for other reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>23</td>
<td>136</td>
<td>84</td>
<td>146</td>
<td>28</td>
</tr>
<tr>
<td>%</td>
<td>5.5</td>
<td>32.6</td>
<td>20.2</td>
<td>35.0</td>
<td>6.7</td>
</tr>
<tr>
<td>Duration of HEN, days</td>
<td>1,854 ± 827</td>
<td>111 ± 176</td>
<td>13 ± 8</td>
<td>219 ± 257</td>
<td>360 ± 453</td>
</tr>
<tr>
<td>Age, years</td>
<td>50.3 ± 28.1</td>
<td>54.0 ± 28.1</td>
<td>76.0 ± 17.0</td>
<td>70.0 ± 19.0</td>
<td>58.1 ± 24.2</td>
</tr>
</tbody>
</table>

1Mean ± SD. Adapted from Schneider et al. [9].
and in this case, the probabilities of being alive 1 and 5 years after initiation of HEN were 65 and 43%, respectively.

**Will HEN Improve or Sustain the Quality of Life of My Patient?**

Quality of life has become a major concern in the treatment of patients with chronic diseases [15]. Little information is available concerning HEN patients. Although it can be assumed that HEN improves quality of life by maintaining patients at home, where premorbid landmarks and the family are present, the resultant alteration in their relations to food and dependency on a feeding tube and an infusion pump can be expected to deteriorate their quality of life. In a recent study we have evaluated the quality of life of 38 patients aged 56 ± 5 years who had been on HEN for more than 25 ± 5 months [16]. Analysis of generic questionnaires (SF-36 and EuroQol questionnaires) revealed poorer quality of life parameters in comparison to a general population. Nevertheless, the patients’ subjective assessment of the changes in their quality of life since beginning HEN was generally good, with most patients reporting improved or stable mental and physical well-being. In another study we evaluated the quality of life of 22 patients with head and neck cancer or neurological diseases who were discharged from hospital with a PEG. They were evaluated at the time of discharge and 3 months later [17]. Both mental and physical health slightly improved between the two evaluations (table 3). In 39 consecutive head and neck cancer patients quality of
life was evaluated after discharge and 3 weeks later using a self-administered questionnaire of the EORTC. Overall, the global health status and quality of life scale score slightly improved but some patients experienced psychosocial distress [18]. In an interesting study, Loeser et al. [19] showed that quality of life was reduced in HEN patients and that part of this effect was explained by malnutrition. In 28 competent and 28 non-competent patients the Karnofsky index improved in 4 months: physical functioning improved and fatigue decreased. Interestingly 50% of the non-competent patients became competent. To determine whether HEN merely prolongs a life of poor quality or can really improve quality of life, a longitudinal and multicenter study of a larger number of patients on HEN is needed. For a given patient the answer to this question may be yes if HEN is well tolerated and if it improves nutritional status. If HEN is not well tolerated it will probably alter the quality of life of the patient. If HEN does not improve nutritional status but only sustains it, the burdens of HEN may alter quality of life and should be evaluated. We recommend the routine and longitudinal evaluation of quality of life with a tool as simple as a visual analogical scale in all patients on HEN.

**Will HEN Improve Outcome and Extend Survival of My Patient?**

This is probably the main question when considering a patient for HEN. The life expectancy of HEN patients is generally poor [20], suggesting that in many cases HEN has no effect on the underlying disease (fig. 2). In our overall experience, HEN patients had a poor outcome, and the probabilities of being alive 1 month, 1 year and 5 years after initiation of HEN were only 80.0, 41.7 and 25%, respectively [9]. An explanation for this poor outcome is the age of these patients. For our overall population, the probabilities of being alive at 1 year were 88% for children, 47% for patients between 16 and 70 years, and 30% for elderly patients over 70 years of age (fig. 3). Moreover, age over 70 was an independent factor influencing mortality. This poor outcome was also influenced by the severity of the underlying disease (cancer,
stroke, amyotrophic lateral sclerosis, etc.), and most deaths were ascribed to the primary disease. In the United States, 1 year after initiation of HEN, 48% of patients with neurological swallowing disorders and 59% of cancer patients had died [21]. Less than one third of HEN patients resumed oral nutrition and more than 50% died during HEN [9]. Despite the selection of candidates for HEN by a professional nutritional support team, approximately 20% of patients die during the first month of HEN. In these patients HEN probably provides no benefit (terminal patients) or is even harmful (demented patients). The selection process is rigorous; however, it may in fact suffer from our overoptimism. Indeed, a recent study evaluating the physicians’ prognostic accuracy in terminally ill patients revealed overoptimistic predictions of survival in 63% of cases, with only 20% of accurate predictions [22].

Clearly, outcome and life expectancy on HEN depend on the patient’s condition and many data are now available. In a recent study, PEG was performed in 23 patients with dementia; 18 other patients met the medical criteria for PEG tube placement, but surrogates refused placement. The median survival for the 23 patients who underwent PEG was 59 days; the median survival for the 18 patients who did not undergo PEG was 60 days [23]. In another study the 6-month mortality of 55 demented elderly with PEG was 44%, and 26% among 33 controls comparable in age, gender, and comorbidities [24]. In this situation we believe, as others [25], that a comprehensive, motivated, conscientious program of hand feeding is the proper treatment. Tube feeding might be considered as an empirical treatment if the family is clearly advised that the best evidence suggests it will not help.

In elderly patients with dysphagia, some recent studies suggest that tube feeding might be helpful. Rudberg et al. [26] compared the mortality outcomes of nursing home patients with or without tube feeding placed at the
time that they became unable to feed themselves and who had swallowing disorders. Estimated survival at 1 year was 39% for those without tube feeding and 50% for those with feeding tube. The precocity of nutritional intervention and the route of EN may also affect outcome and mortality. In patients with dysphagic stroke, mortality at 6 weeks was significantly lower in the PEG group (12%) compared with patients fed via a nasogastric tube (57%) [27]. In another study, a group of amyotrophic lateral sclerosis (ALS) patients were offered PEG when weight loss exceeded 5% of normal body weight or if symptomatic dysphagia occurred. Approximately half of the patients rejected the offer of a PEG and thus constituted a self-selected untreated control group. The others received EN via a PEG. Both groups were similar in terms of ALS severity, body mass index, percent of weight loss, and forced vital capacity. Patients receiving HEN maintained body weight, whereas the untreated control subjects experienced a progressive weight loss. Approximately 40% of PEG-fed patients were alive at 2 years, whereas survival in controls was only 5% [28].

Another frequent situation is patients with head and neck cancer. Aggressive surgical resection followed by soft tissue and bone reconstruction associated with radiotherapy and chemotherapy is the gold standard for advanced cancer. However, the incidence of complications is high and reaches 20–50%. Studies have reported malnutrition in 35–50% of head and neck patients at the time of

\[Fig. 3.\] Survival probability of patients on home enteral nutrition as a function of age. Adapted from Schneider et al. [9].
diagnosis and malnutrition is recognized as a factor of poor prognosis in cancer treatment-related morbidity and mortality. The surgical treatment includes tracheostomy, glossectomy, mandibulectomy, surgery of the palate, and total or partial laryngectomy. In addition, oropharyngeal function can be hindered further by radiation and chemotherapy, which cause mucositis, xerostomia, dysgeusia, nausea, vomiting and anorexia [29]. It has been shown that the incidence of severe weight loss during radiotherapy is about 33% with a 10% rate of rehospitalization. Postoperative tube feeding significantly reduces the incidence of weight loss and hospitalization during radiotherapy [30]. The effectiveness of early nutritional intervention in oropharyngeal cancer patients undergoing radiotherapy has been confirmed in another study [31]. In head and neck cancer patients at high risk of malnutrition we propose PEG before surgery/radiotherapy/chemotherapy in order to reduce weight loss and complications and therefore to optimize cancer treatment.

In conclusion, the goals of HEN are dependent of the patient’s condition and the medical situation. In all cases tolerance of EN is an issue. In patients at high risk of complications such as aspiration, EN should not be proposed. If EN is well tolerated it will be able to maintain or to improve nutritional status. In patients with severe oral failure due to dysphagia sustaining nutritional status extends life duration. In other cases evaluation of the effects of HEN on quality of life is certainly necessary. In some cases good evidence exists in the literature, suggesting that EN may have a positive (dysphagia after stroke, ALS, head and neck cancer) or a negative (dementia) effect on outcome. On every occasion, questions on the goals of nutritional support should be clearly asked and discussed with the patient and/or his/her family/caregivers in order to evaluate the risks/benefits ratio of the treatment.

References

What Are the Goals of Nutritional Support?


Discussion

Dr. Cynober: You started by mentioning that there are two approaches: enteral nutrition at home as basic therapy or medical therapy. You immediately discard basic
therapy and then you presented a lot of interesting data on tolerance, quality of life, and I come to the conclusion that actually what you presented is evidence from basic therapy. My question is, as a goal for example, what about healing in head and neck cancer patients or supporting the immune function in order to avoid secondary infections and so on?

Dr. Hébuterne: If you try to avoid some complications it is a medical treatment, and if you start antibiotics because of infection it is a medical treatment, so it is the same. I know it is not easy to differentiate basic treatment and medical treatment and the problem may be in patients in a vegetative state, it is probably the most difficult question. I am not sure that the response is medical, it may be ethical and in this case the family's opinion is very important. In our experience we have some patients who have been on home enteral nutrition for more than 20 years due to a motorcycle accident, and we have to change the tube every 2 years. In this case the pressure of the family is terrible, they are very anxious about changing the tube in this vegetative patient.

Dr. Biesalski: May I go into more detail on the question from Dr. Cynober? I think what you meant was if you take enteral or parenteral nutrition as a medical treatment what about antioxidants, what about immune enhancing substitutes, and what about, for example, special amino acids or whatever, if I take it as a treatment?

Dr. Hébuterne: Yes, we have some recommended dietary allowances (RDAs). We need to give the patient the RDA, and if we put 1,500 cal into a patient we have RDAs for vitamins, for everything. After that if you have to give more of something like β-carotene or vitamin E or selenium, I think it is a medical treatment because you give more than expected from the RDAs. But the question is are the RDAs right, what is the amount of vitamin C we need every day just to avoid complications due to vitamin C deficiency or to prevent coronary heart disease – that is a problem.

Dr. Fürst: My comment is directly associated with the previous question. We have a great problem. You defined the basic treatment to ascertain nutrition requirement. Now we don’t know the nutritional requirement in a disease condition. For instance for amino acids we have no data. What is the requirement? Our moderator may confirm my statement that we have no idea how much vitamins and how much antioxidants we should give to a septic patient. We were sitting in the WHO FO Committee to define the nutritional requirement for amino acids and we only came to the healthy population, so we were not able to give a recommendation concerning sick patients. You nicely showed that by using nutritional support we are able to improve outcome, but I would like to emphasize strongly that probably by knowing the proper requirement we could further improve treatment. This is a priority for future research to define the requirement, because if you do not have the basic treatment, your medical treatment has no baseline on which to build up the appropriate treatment.

Dr. Hébuterne: I don’t totally agree with you. I know that it is not a scientific demonstration, that it is an empirical demonstration, but we now have some experience with patients on long-term enteral nutrition. My oldest patient started enteral nutrition in 1985 without receiving anything by mouth, she cannot eat anything, and she cannot swallow. She is like you and me, she can walk, she is a grandmother now, it was after an accident, and she received 1,500 to 2,000 cal/day of standard polymeric diet with no supplementation, without any problems for 20 years. We have several patients like that and I think we can use these patients to discover the requirement. You don’t know the requirement, I don’t know the requirement, but she knows her requirement because when her grandson is expected to come home she takes 2,000 calories to improve her body weight and to have more time to take care of her grandson when he is there. So these kinds of patients know exactly how to manage
enteral nutrition, I think this is interesting. But I agree with you in this case it is not sick patients, it is normal patients. We also have some experience with sick patients after surgery for example, and it is not very difficult to maintain nutritional status and body weight in chronic patients, but of course in acute patients it is a little bit different.

*Dr. Van Gossum:* You mentioned that for patients with a high risk of aspiration home enteral nutrition should perhaps not be initiated, but it is true that it is the main cause of mortality in these patients. What are your criteria to define a high risk of aspiration, and do you think that we could prevent such an event and such complication by using a specific enteral access such as percutaneous endoscopic gastrostomy (PEG) or percutaneous endoscopic jejunostomy?

*Dr. Hébuterne:* The patient at risk of aspiration is a patient with aspiration before enteral nutrition, and this is the case in demented patients. I think most physicians agree that enteral nutrition is not good for these patients. We have conscious patients who cannot swallow; they are of course at risk of aspiration and in this case it may be useful just to put in a PEG. There are also patients who are between non-competent and competent patients. For example the patients of Loeser et al. [1], during the follow-up they are incompetent at the beginning and they become competent. These kinds of patients are very interesting because it is possible to improve their outcome. In this case it may be interesting to use jejunostomy or jejunal PEG or direct percutaneous endoscopic jejunostomy, and according to our experience it is not always very easy to perform. With direct percutaneous endoscopic jejunostomy we have some leakage problems in 15–20% of the patients so we don’t chose it very often. What we try to do is to have a good protocol to avoid aspiration. First of all is to use a pump: it was well demonstrated that a bolus of nutrients in the stomach diminishes the pressure of the lower esophageal sphincter. When enteral nutrition is put in with a pump at a regular flow it is better, and in this case we try to avoid enteral nutrition during sleep, it is better during the day, and also small procedures like that.

*Dr. Bozzetti:* I perfectly agree with your conclusions because they are supported by the data. Nevertheless I also agree with Dr. Cynober and I think we should be reminded of the statement of the ASPEN Board of Directors in their clinical guidelines [2]. When they classify their recommendations for total parenteral nutrition they say that there is some difference between a drug and nutrition because healthy people do not need drugs but healthy people need nutrition to survive. So this is the main difference between basic support and a drug. I think that we are not in the position to demonstrate scientifically through randomized clinical trials the efficacy of nutritional support in aphagic patients because we cannot have a control group that doesn’t receive nutritional support. This is the main reason why I think that nutritional support should be classified in aphagic malnourished patients as a basic support rather than as a clinical treatment.

*Dr. Correia:* I totally agree with most of your final conclusions. I just would like to make two comments based on dementia patients and on patients with a high risk of aspiration. The reason for my comments on that is because most of our decisions are based on scientific reasoning and most of the studies [3, 4] showing that dementia patients do not benefit from nutrition were not randomized and therefore most of the conclusions were biased. That means that most of the patients who received enteral nutrition had it at the very end of their lives, so definitely nutrition will not change the course of their illness. This seems to be the same attitude as oncologists in my hospital when I suggest gastrostomy for head and neck cancer patients, they always say no because they will have a lot of complications due to the gastrostomy. I tell them that the patients are not having complications due to the gastrostomy, they are having complications because they are receiving the gastrostomy when they are already
severely malnourished. So the complications are not due to the gastrostomy per se but to their nutritional status. So again, I am very much afraid when we as specialists working with nutrition say watch out for dementia patients because most of these results are biased: they were not randomized studies, and the patients were chosen early in the initial state of disease so that those who received nutrition did better. The second remark has to do with aspiration pneumonia. Of course if the patients are at high risk of aspiration pneumonia, they will still be at high risk of aspiration pneumonia no matter whether they receive enteral diets or not, and no matter if it is in the stomach or in the jejunum because they will aspirate saliva anyway. So I think that, although they are at high risk, they should still receive nutrition because otherwise they are going to die of starvation rather than their disease. I totally agree with your results, but we must be cautious when we make statements such as watch out for dementia patients or high risk patients because those outside will just use that against us or against our patients.

Dr. Hébuterne: I totally agree with you it is very important to start as early as possible, and then we never regret placing a PEG when the disease just starts, at the beginning, it is really the best way to do. But the problem is that sometimes we first see the patient at the end of the disease, a 90-year-old patient with a body mass index of 12, and we are asked to do something. What can we do, if we just touch the patient he will die, so it is a problem. The studies on amyotrophic lateral sclerosis (ALS) patients demonstrate that if we start at the beginning it is probably better at this time. Of course if you do very well, nutritional support may improve the outcome, it may improve survival. I am sure that we improve survival in some patients if we start at the beginning but I am also sure that we can kill the patient if we start later. The selection of the patients is the most difficult point. When we started our program of enteral nutrition the 1-month mortality was 25% as in the literature. It was not too bad but we thought it was bad, so we tried to improve that. We have now a policy for selecting the patients. It is impossible for us to go down to a 15% 1-month mortality in these patients. Why, because when you ask a physician to assess the survival of patients, 50% of the time the assessment is not good, and in this case there is always an over-optimistic assessment. This was demonstrated several years ago. So we expect the patient will live 2–5 months, 5 months if we are optimistic. In this case there is doubt about the probability of survival of the patients and the doctors prefer to try the procedure rather than not try it, but this is difficult and in our experience less than 15% of the 1-month mortality is not possible.

Dr. Labadarios: In your first slide I found it very interesting that you said, or I think I understood you saying, that malnutrition is a disease. Can you elaborate on that?

Dr. Hébuterne: I am happy that you pointed this out because I think we have to explain to other physicians and to politicians that malnutrition is a disease. For example we are going to change the legislation on home enteral nutrition in France for the third time in 10 years. In France we like to change the law regularly, and at this time we are trying to avoid a list of diseases, and we are trying to say that the indication of enteral nutrition is first malnutrition. So if the problem is malnutrition we have to treat it, and it is logical to say that nutritional support is a treatment if malnutrition is a disease. Secondly patients are at risk of malnutrition when they are not able to cover their energy needs with food. We are trying to avoid a list of diseases because when you make a list of diseases there is always one disease which is not on the list, and that is a problem.

Dr. Labadarios: Actually I agree with the speaker that malnutrition is a disease, and what is important is that it is the number 1 disease worldwide, which is a neglected entity in any case.
References

2 ASPEN Board of Directors and the Clinical Guidelines Task Force: Guidelines for the use of parenteral and enteral nutrition in adult and pediatric patients. JPEN J Parenter Enteral Nutr 2002;26(suppl):1SA–138SA.