Background  Concerns about anorexia and weight loss are commonly expressed by advanced cancer patients and their families. Parenteral nutrition is a controversial and expensive treatment that is sometimes considered to assist with nutrition in advanced cancer patients. PN involves the intravenous delivery of a mixture of lipids, carbohydrates, amino acids, vitamins, and minerals. This Fast Fact reviews the role of PN in advanced cancer patients.

The Problem  Weight loss in advanced cancer is frequently due to insufficient caloric intake as well as cancer-mediated hypermetabolism and hypercatabolism. These latter problems are caused by catabolic proinflammatory cytokines and eicosanoids and are responsible for much of the accelerated muscle wasting (cachexia) seen in advanced cancer. Patients and families frequently worry about malnutrition and starvation and request help from physicians to ameliorate these.

The Role of PN  PN is usually considered outside the standard of care for most patients with advanced cancer. This is based on clinical research findings and other observations:

1. With a few specific exceptions (such as head and neck cancer patients undergoing radiation therapy), caloric supplementation of any kind has not been shown to benefit advanced cancer patients, and – if indicated – can almost always be achieved enterally.
2. There is no physiologic basis to assume that PN would affect the inflammatory and catabolic aspects of cachexia.
3. PN brings potential risks and burdens: laboratory testing, indwelling intravenous lines, infections, metabolic derangements, liver and pancreatic dysfunction.

Patients with progressive weight loss should have careful clinical assessments for potentially reversible causes (such as inadequate caloric intake or depression). Education and emotional and family support are the cornerstones of treatment otherwise. Drug interventions are an active focus of research although their efficacy remains controversial (see Fast Facts #93, 100).

PN guidelines  There does remain however a small subset of advanced cancer patients for whom PN may be an appropriate therapy to improve quality and/or length of life. The following guidelines have been suggested to identify patients appropriate for PN:

- Enteral nutrition (including tube feeding) is not an option or there is a specific benefit expected from parenteral nutrition (e.g. inoperable malignant bowel obstruction, short bowel syndrome, and malabsorption). These are patients for whom a non-functional GI tract, and not cachexia itself, is the major problem.
- Death is probable from starvation or malnutrition earlier than anticipated from disease progression alone.
- The patient has a life expectancy of at least several months to allow a proper trial of PN (Karnofsky Performance Scale Score >50 or ECOG performance status ≤2).
- The patient has a good self-assessed quality of life; life-prolongation is consistent with their goals of care and the potential risks of PN are acceptable to the patient.
- The patient or caregiver can safely accommodate PN if at home: the home environment is safe and clean; someone is able to set-up and administer the PN; and the patient can be clinically monitored, including laboratory investigation.
- Typically close monitoring of electrolytes, liver and renal function, and triglycerides is required. In addition, careful assessments of the patient’s response to treatment and global clinical course are needed to ensure PN remains an appropriate intervention.

Summary
PN can be an important palliative treatment, but for only a small group of cancer patients. Careful patient selection and monitoring is important to ensure that PN is meeting patient-defined goals of care.

References


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