

Alternative nutrition for intestinal failure



When a person is unable to absorb needed nutrients due to intestinal failure or intestinal insufficiency, alternative nutrient support can be administered in one of two ways: via tube feeding (enteral nutrition) or intravenous feeding (parenteral nutrition).

Though the mechanisms vary, the overall goal is the same: to provide carefully calibrated nutrition in liquid form to individuals who cannot digest food normally.

In the 1970s, UCLA was the first center nationwide to offer comprehensive enteral nutrition (EN) and parenteral nutrition (PN) services to both children and adults.

At more than 10,000 patient-days per year and with the strength of a team of physicians, nurses, dietitians, social workers, psychologists and pharmacists, the UCLA program remains one of the largest and busiest in the United States.

Characterizing enteral and parenteral nutrition

EN delivers a “pre-digested” formula via infusion into the stomach or small intestine of an individual who has a functional gastrointestinal (GI) tract but is unable to eat and drink. The custom-tailored formula contains protein, fats, carbohydrates, vitamins and minerals.

Facing the future with hope and optimism

The Enteral and Parenteral Nutrition Support Program at UCLA recognizes the unique needs of its home pediatric and adult patients. Social workers, home-infusion nurses and nutrition-support clinicians embrace caregiving strategies and tools consistent with the demanding physical, psychological and social environment of long-term home parenteral nutrition (HPN).

“Accepting an invasive, sometimes lifelong therapy like HPN is challenging for patients and their family caregivers, even for those individuals who may recover and improve their physical and nutritional status,” says Jorge Vargas, MD, professor of pediatric gastroenterology and director of the Enteral and Parenteral Nutrition Program.

“We consider not only all available medical modalities to promote independence from nutrition support, but do everything we can to bring a sense of normalcy to the individual and family that is struggling to adjust. Our goal is to let each patient know that they are not alone and can face the future with hope and optimism.”

For transient EN — until a patient can feed on his or her own — a nasogastric or nasojejunal tube is typically used. For longer-duration nutritional management, a gastrostomy tube (G-tube) or gastro-jejunal feeding catheter (G-J tube) is inserted directly into the GI tract.

Tube feeding may be indicated for a broad spectrum of conditions including infant prematurity, chronic eating disorders, GI surgery, digestive cancer and dysphagia (swallowing difficulty) due to stroke.

For people with a nonfunctional GI tract, PN supplies precise nourishment into the blood stream through a catheter connected to a programmable pump and inserted into a central vein, sometimes over a span of 10 to 12 hours, five to seven days a week.

Intravenous feeding may be employed short-term, as in the case of intractable vomiting during pregnancy, or on a more extended or permanent basis with conditions such as short bowel syndrome and gastrointestinal obstruction, together affecting up to half of all pediatric and adult PN patients.

A focus on TPN

If the GI tract is at all functional and EN is not indicated, partial parenteral nutrition (PPN) is preferred to the more physiologically complex total parenteral nutrition (TPN), in which a patient receives all nourishment through an intravenous line.

Significant risks associated with long-term TPN include blood infections, loss of vein access and intestinal failure-associated liver disease (IFALD). However, with rigorous monitoring and management protocols, more than 80 percent of UCLA TPN patients fare well on TPN, compared to 65 percent at other centers.

Additionally, cutting-edge research at UCLA — including the use of IV omega-3 lipid formulations, which appear to have a protective effect on the liver — improves the likelihood of “intestinal adaptation,” whereby the inner lining of the small intestine grows, increasing its ability to absorb nutrients. Intestinal adaptation creates a dramatic shift, sometimes in just months, away from intravenous feeding to oral nutrition and is more often seen among pediatric patients.

EN/PN program support at home

More than twice as many patients nationally — about 150,000 for EN and 40,000 for PN — receive home infusion as are treated in the hospital. The nutrition program team works closely alongside these patients and their families to meet the exacting challenges of the home EN/PN program with evidence-based practices in medical evaluation, nutrition assessment and follow-up monitoring.

Advanced-practice nurses provide detailed instruction on how to prepare and administer nutrition and care for tubes and catheters. Patients are observed closely for complications, but may have no other restrictions on their lifestyles or activity levels.

As the first and largest hospital-based program providing evaluation and delivery of home parenteral and enteral nutrition, UCLA's clinic has become the standard for such programs across the U.S.

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