

# Early IV nutrition for certain patients does improve survival or reduce ICU length of stay

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The early (within 24 hours of intensive care unit [ICU] admission) provision of intravenous nutrition among critically ill patients with contraindications (a condition that makes a particular procedure potentially inadvisable) to early use of enteral nutrition (such as through a feeding tube) did not result in significant differences in 60 day mortality or shorter ICU or hospital length of stay, compared with standard care, according to a study in the May 22/29 issue of *JAMA*. The study is being released early online to coincide with its presentation at the American Thoracic Society international conference. The intervention did result in a significant reduction in days of invasive mechanical ventilation.

"Parenteral nutrition [PN; intravenous administration of nutritional support] has been in common use since the 1960s and is accepted as the standard of care for [patients](#) with chronic nonfunctioning gastrointestinal tracts," according to background information in the article. In critical illness, controversy surrounds the appropriate use of parenteral nutrition. "Systematic reviews suggest [adult patients](#) in ICUs with relative contraindications to early enteral nutrition [EN; feeding through the [gastrointestinal tract](#), such as with the use of a feeding tube] may benefit from PN provided within 24 hours of ICU admission."

Gordon S. Doig, Ph.D., of the University of Sydney, Australia, and colleagues conducted a multicenter clinical trial to assess the effects of

providing parenteral nutrition within 24 hours of ICU admission to adult critically ill patients who would not otherwise receive [nutrition therapy](#) because of short-term relative contraindications to enteral nutrition. The randomized trial was conducted between October 2006 and June 2011 in ICUs of 31 community and tertiary hospitals in Australia and New Zealand. Participants were critically ill adults who were expected to remain in the ICU longer than 2 days.

A total of 1,372 patients were randomized (686 to standard care, 686 to early PN). Of 682 patients receiving standard care, 199 patients (29.2 percent) initially began EN, 186 patients (27.3 percent) initially began PN, and 278 patients (40.8 percent) remained unfed. Time to EN or PN in patients receiving standard care was 2.8 days. Patients receiving early PN began PN an average of 44 minutes after enrollment in the trial.

The researchers found that day-60 mortality did not differ significantly between groups (22.8 percent for standard care vs. 21.5 percent for early PN). There were also no significant differences between groups in rates of new infection. Standard care patients experienced significantly greater muscle wasting and significantly greater fat loss over the duration of their ICU stay.

Early PN patients rated day-60 quality of life statistically, but not clinically meaningfully, higher. Early PN patients required fewer days of invasive ventilation, but this did not result in a statistically significant reduction in ICU or hospital length of stay.

No harm was associated with the use of early parenteral nutrition in this trial.

"The findings reported by Doig et al add important knowledge to the ongoing debate about when, how much, and through what route critically ill patients should be fed," write Juan B. Ochoa Gautier, M.D., of the

University of Pittsburgh, and Flavia R. Machado, M.D., Ph.D., of the Federal University of Sao Paulo, Brazil, in an accompanying editorial.

"This article joins several articles that suggest either benefit or harm from supplemental parenteral nutrition or whether 'trophic feeding' is 'just as good' as meeting nutritional goals in medical patients in the ICU during the first 7 days of their hospitalization. A significant amount of additional work is required to determine how to best deliver nutrition interventions in the ICU. It is essential (and indeed ethically imperative) for investigators at the forefront of this debate to be circumspect in their conclusions and clinical recommendations, to avoid their findings being misinterpreted and creating more harm than good. For now clinicians should attempt to optimize oral/enteral nutrition, avoid forced starvation if at all possible, and judiciously use supplemental parenteral [nutrition](#)."

**More information:** *JAMA*. 2013;309(20):2130-2138  
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