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## Intravenous Nutrition in Critically Ill Patients Should Be Delayed, Study Finds

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Patients in the intensive care unit who do not tolerate adequate nutrition from tube feeding should wait a week before receiving intravenous (IV) feeding because, compared with early IV feeding, it enhances recovery from critical illness. Results of a new multicentre study from Belgium are being presented at The Endocrine Society's 93rd Annual Meeting in Boston.

"These findings have enormous impact for improving quality and reducing the cost of medical care for critically ill patients," said the study's principal investigator, Greet Van den Berghe, MD, PhD, a professor at the Catholic University of Leuven.

Results of this large randomised, controlled clinical trial contradict European clinical guidelines on IV nutritional support in ICU patients, and lend support to American and Canadian recommendations. Van den Berghe said, "The standard of care in Europe should change." At issue is the optimal timing to initiate parenteral nutrition (PN), also called IV feeding, in critically ill patients who are not getting enough calories through the gut by enteral nutrition, or tube feeding. To avoid ICU patients becoming weak from nutritional deficit, European experts recommend that they begin PN within two days of admission to the ICU, Van den Berghe explained. However, PN is linked to an increased frequency and severity of hyperglycemia, or high blood sugar. Experts in the U.S. and Canada advise withholding PN during the first week in the ICU if patients were not malnourished before admission.

"Until now there has been no good scientific evidence to support either of the widely implemented nutritional strategies in intensive care," she said. This study, called the EPaNIC trial for Early Parenteral Nutrition to supplement insufficient enteral nutrition in Intensive Care patients, compared the timing of PN initiation in adults at seven ICUs in Belgium who were at risk of malnutrition. Of the 4,640 participants, 2,312 patients were randomly assigned to receive "early" PN (within 48 hours of admission), and 2,328 received "late" PN (no earlier than day 8 in the ICU). Both groups received early enteral nutrition support and insulin to target normal blood sugar levels.

The researchers found that late PN was superior to early PN, with time in the ICU a median of one day shorter. "Withholding IV nutrition for one week in the ICU, even in patients who could not be fed at all via the normal enteral route, surprisingly accelerated alive discharge from the ICU and from the hospital, without threatening their ability to function," Van den Berghe said. Late PN also lowered the frequency of complications compared with early PN, including reducing severe infections (22.8 versus 26.2 percent, respectively), the authors reported. Also, late PN shortened the time on a ventilator and on dialysis, "thus allowing faster recovery from organ failure," and it "prevented liver function abnormalities," Van den Berghe said.

The investigator-initiated study received funding from the Fund for Scientific Research in Flanders, Belgium, the Catholic University of Leuven (GOA), and the Methusalem program from the Flemish government in Belgium. A nonrestricted grant to the Catholic University of Leuven came from Baxter Healthcare in France.

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