International Centre for Allied Health Evidence

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*i*CAHE JC Critical Appraisal Summary

Journal Club Details

Date of submission	March 2012
Journal Club location	RAH
JC Facilitator	Claire Roberts
JC Discipline	Nutrition

Clinical Question

What are the recommendations for nutrition in adult patients with acute renal failure +/- on intensive/critical care?

Review Question/PICO/PACO

P Adults, with acute renal failure (aka acute kidney injury, acute kidney failure)

I Nutrition support, nutrition requirements

Article/Paper

Casaer et al. Mesotten D, Hermans G et al. (2011) Early versus late parenteral nutrition in critically ill adults, *The New England Journal of Medicine*, 365; 506-17.

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Article Methodology:	Randomised Controlled Trial
Returned JC on:	March 2012

Ques No.	Yes	Can't Tell	No	Comments
1	✓			**Did the study ask a clearly-focused question?** YES The objective of this study was to compare early initiation of parenteral nutrition (European guidelines) with late initiation (American and Canadian guidelines) in adults in the intensive care unit (ICU) to supplement insufficient enteral nutrition. *Population:* Adults who were admitted to 1 of the 7 participating ICUs were eligible for inclusion if they had a score of 3 or more on nutritional risk screening (NRS) (on a scale of 1 to 7, with a score ≥3 indicating that the patient was nutritionally at risk) and did not meet any of the exclusion criteria (Shown in Figure 1 pg. 508). Written informed consent was provided by all patients or their designated representatives. *Intervention*: Participants were either randomly assigned to early-initiation or late-initiation. For detailed information on what each group received please see pg. 508, study procedures. *Outcome:* *Safety end points:* Vital status (the proportion of patients who were alive at discharge from the ICU in ≤8 days, the rates of death in the ICU and the hospital, and the rates of survival up to 90 days, regardless of ICU and hospital discharge status) and the rates of complications and hypoglycemia. *Primary Efficacy End Point* The primary end point was the duration of dependency on intensive care, assessed as the number of ICU days (for survivors and nonsurvivors) and the time to discharge from the ICU. *Secondary Efficacy End Points* Included many variables. For further details concerning endpoints please see page 511.
2	✓			**Was this a randomised controlled trial (RCT) and was it appropriately so?** YES, this study was a randomized, parallel-group, multicenter trial which was an appropriate study design to address the objective of the study. **Is it worth continuing?** YES

3	✓			**Were participants appropriately allocated to intervention groups?** Sequentially numbered, sealed, opaque envelopes were used for the randomization process and replaced by an identical digital system at all sites after the addition of the Jessa Hospitals study sites. Baseline demographic and clinical characteristics of the patients were well matched between the two study groups.
4	✓			**Were participants, staff and study personnel 'blind' to participants' study group?** All outcome adjudicators were blinded of study-group assignments and treating physicians and nurses did not know the block size.
5	✓			**Were all of the participants who entered the trial accounted for at its conclusion?** Yes, this is shown in figure one on page 508.
6	✓			**Were the participants in all groups followed up and data collected in the same way?** Yes, this was kept consistent in the study.
7	✓			**Did the study have enough participants to minimise the play of chance?** As reported the sample-size calculation was based on the ability to detect a between-group change of 1 day in the ICU stay with a power of at least 80% and to concomitantly detect a change of 3% in the rate of death in the ICU with a power of at least 70%. Additionally all analyses were performed on an intention to treat basis thereby including data collected even in the case of drop-out.

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8				**How are the results presented and what is the main result?** The results are presented using means, standard deviation, interquartile range, P values and confidence intervals. This was presented in text and tables. *Bottom line result*: Late initiation of parenteral nutrition was associated with faster recovery and fewer complications, as compared with early initiation. As the results were reported, the late-initiation group had a relative reduction of 9.7% in the proportion of patients requiring more than 2 days of mechanical ventilation (P = 0.006), a median reduction of 3 days in the duration of renal replacement therapy (P = 0.008), and a mean reduction in health care costs of around $1,600 (P = 0.04).
9				**How precise are these results?** The precision of results can be determined based on confidence intervals. The confidence interval describes the uncertainty inherent in the reliability estimate, and describes a range of values within which we can be reasonably sure that the true reliability actually lies. If the confidence interval is relatively narrow (e.g. 0.70 to 0.80), the reliability of the result is known precisely. If the interval is wider (e.g. 0.60 to 0.93) the uncertainty is greater, although there may still be enough precision to make decisions about the reliability of the estimate.
10				**Were all important outcomes considered so the results can be applied?** Journal club to answer

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