

5.4 Strategies to optimize delivery and minimize risks of Enteral Nutrition: Body position

June 28th, 2005

Recommendation:

Based on 1 level 2 study, we recommend that critically ill patients receiving enteral nutrition have the head of the bed elevated to 45 degrees. Where this is not possible, attempts to raise the head of the bed as much as possible should be considered.

Discussion: The committee noted the large treatment effect with narrow confidence intervals from the one level two study with high internal validity. It was agreed that the 45 degree position may not be feasible for all patients and the long term safety concerns of this position are not known (especially skin care). The low cost of this intervention was also noted.

Values	definition	Score: 0, +, ++, +++
Effect size	magnitude of the absolute risk reduction attributable to the intervention listed--a higher score indicates a larger effect size	3+
Confidence interval	95% confidence interval around the point estimate of the absolute risk reduction, or the pooled estimate (if more than one trial)--a higher score indicates a smaller confidence interval	3+
Validity	refers to internal validity of the study (or studies) as measured by the presence of concealed randomization, blinded outcome adjudication, an intention to treat analysis, and an explicit definition of outcomes--a higher score indicates presence of more of these features in the trials appraised	3+
Homogeneity	similar direction of findings among trials--a higher score indicates greater similarity of direction of findings among trials	0
Safe	estimated probability of avoiding any significant harm that may be associated with the intervention listed--a higher score indicates a lower probability of harm	2+
Feasible	ease of implementing the intervention listed--a higher score indicates greater ease of implementing the intervention in an average ICU	2+
Cost	estimated cost of implementing the intervention listed--a higher score indicates a lower cost to implement the intervention in an average ICU	3+

Question: Do alterations in body position result in better outcomes in the critically ill adult patient?

Summary of evidence: There was only one randomized controlled trial (Drakulovic) that compared the frequency of pneumonia in critically ill patients assigned to semirecumbent or supine position (level 2 study).

Mortality: There was no significant difference between the groups ($p = 0.289$).

Infections: There were less episodes of pneumonia in patients in the semi recumbent vs. supine position ($p = 0.018$).

LOS: There were no statistically significant differences between the groups.

Ventilator days: There were no differences between the groups.

Conclusions:

- 1) Semirecumbent position is associated with a significant reduction in nosocomial pneumonia in critically ill patients.
- 2) Semirecumbent position has no effect on mortality in critically ill patients.

Level 1 study: if all of the following are fulfilled: concealed randomization, blinded outcome adjudication and an intention to treat analysis.

Level 2 study: If any one of the above characteristics are unfulfilled.

Table 1. Randomized studies evaluating body position in critically ill patients

Study	Population	Methods (score)	Intervention	Mortality # (%)		RR (CI)**	Pneumonia # (%)‡		RR (CI)**
				Semirecumbent	Supine		Semirecumbent	Supine	
ID # 58 Drakulovic 1999	Mixed ICU's N = 90	C.Random: yes ITT: other Blinding: no (10)	Semirecumbent vs supine	7/39 (18) ICU	13/47 (28) ICU	0.65 (0.29-1.47)	2/39 (5)	11/47 (23)	0.22 (0.05-0.93)

Study	LOS days		Ventilator days		Cost		Other	
	Semirecumbent	Supine	Semirecumbent	Supine	Semirecumbent	Supine	Semirecumbent	Supine
ID # 58 Drakulovic 1999	9.7 ± 7.8 (39) ICU	9.3 ± 7.2 (47) ICU	7.1 ± 6.9 9 (39)	6.0 ± 6.2 (47)	NA	NA	NA	NA

C.Random: concealed randomization
 ITT: intent to treat
 NA: not available

± () : mean ± Standard deviation (number)
 ‡ refers to the # of patients with infections unless specified
 ** RR= relative risk, CI= Confidence intervals

TOPIC: 5.4 Body position

(Reviewers: Darlene Harrietha & Dominique Michaud)

Article inclusion log

Criteria for study selection

Type of study: RCT or Meta-analysis
Population: critically ill, ventilated patients (no elective surgery patients)
Intervention: TPN and /or EN
Outcomes: mortality, LOS, QOL, functional recovery, complications, cost. Exclude studies with only biochemical, metabolic or nutritional outcomes.

ID #		Author	Journal	I	E	why rejected
57.	1.	Ibanez	JPEN 2000		√	Compares nasogastric tubes, not different body positions
	2.	Vandervoort	Critical Care 2001		√	Not RCT
58.	3.	Drakulovic	Lancet 1999	√		
	4.	Ibanez	JPEN 1992		√	No significant outcomes
	5.	Orozco-Levi	Am J Resp CCM 1995		√	No significant outcomes

I = included, E = excluded