

5.6 Strategies to Optimize the Delivery of EN: Discarding Gastric Residual Volumes

There were no new randomized controlled trials since the 2015 update and hence there are no changes to the following summary of evidence.

Question: Does the use of returning or discarding high gastric residual volumes (GRVs) result in better outcomes in the critically ill adult patient?

Summary of evidence: There was one level 2 study that compared the return of gastric residual volume up to a maximum of 250 mls vs. discarding the residuals.

Mortality: Not reported.

Infections: Not reported.

LOS: There were no differences in ICU length of stay between the groups (WMD -0.70, 95% CI -3.61, 2.21, $p=0.64^*$). Ventilator days were not reported.

Ventilator days: Not reported.

Other: There were no differences in diarrhea ($p=0.71$), abdominal distention ($p=0.07$), or patients with hyperglycemia ($p=0.55$), while the episodes of delayed gastric emptying were significantly lower in the GRV return group ($p=0.001$).

Conclusions:

- 1) Re-feeding GRVs is not associated with more gastric complications when compared to discarding GRVs.

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 gastric residual volume in critically ill patients

Study	Population	Methods (score)	Intervention	Mortality # (%)†		Infections # (%)‡	
				GRV return	GRV discard	GRV return	GRV discard
1) Juve-Udina 2009	ICU patients fed via EN or PN N=125	C.Random: no ITT: No Blinding: No (5)	GRV>250 mL discard excess, refeed 250mL vs. if GRV>250 mL discard entire feed	NR	NR	NR	NR

Table 1. Randomized studies evaluating gastric residual volume in critically ill patients (Continued)

Study	Length of Stay		Mechanical Ventilation		Other
	GRV return ICU	GRV discard ICU	GRV return	GRV discard	GRV return GRV discard
1) Juve-Udina 2009	16 ± 8.1 (61)	16.7 ± 8.3 (61)	NR	NR	Diarrhea 25/61 (41) 22/61 (36), p=0.71 Abdominal distention 13/61 (21) 17/61 (29), p=0.07 Patients with hyperglycemia 41/61 (67) 45/61 (73), p=0.55 # episodes of Hyperglycemia 1352 (62) 1376 (53), p=0.001 # episodes delayed gastric emptying 2170 2580, p=0.001 Mean administered of EN (ml) 1296.3 1291.5, p=0.89 Mean EN duration (days) 8.2 ± 4.2 9.9 ± 1.4, p=0.28 EN feeding delays, patient, no, (%) 11 (26.8) 8 (22.2), p=0.91 EN feeding delays, episodes, mean 1.68 2.26, p=0.11

C.Random: concealed randomization

† presumed hospital mortality unless otherwise specified

± () : mean ± Standard deviation (number)

EN: Enteral nutrition

ITT: intent to treat; NA: not available

GRV: gastric residual volume

‡ refers to the # of patients with infections unless specified

ICU: Intensive care unit