

5.5d Strategies to Optimize the Delivery of EN: Discarding Gastric Residual Volumes

There have been 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 returning or discarding high gastric residual volumes 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 returning or discarding high gastric residual volumes 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	25/61 (41)	22/61 (36), p=0.71
					13/61 (21)	17/61 (29), p=0.07
					41/61 (67)	45/61 (73), p=0.55
					1352 (62)	1376 (53), p=0.001
					2170	2580, p=0.001
					1296.3	1291.5, p=0.89
					8.2 ± 4.2	9.9 ± 1.4, p=0.28
					11 (26.8)	8 (22.2), p=0.91
					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

References

Included Studies

1. Juvé-Udina ME, Valls-Miró C, Carreño-Granero A, et al. To return or to discard? Randomised trial on gastric residual volume management. *Intensive Crit Care Nurs.* 2009;25(5):258-267. doi:10.1016/j.iccn.2009.06.004

Excluded Studies	Reasons
Booker KJ, Niedringhaus L, Eden B, Arnold JS. Comparison of 2 methods of managing gastric residual volumes from feeding tubes. <i>Am J Crit Care.</i> 2000;9(5):318-324.	No clinical outcomes
Behairy AS, Elsedawy ED. Effect of returning versus discarding gastric aspirate on the occurrence of gastric complications and comfort outcomes on enteral feeding patients. <i>J Nat Sci Res.</i> 2014;14(15):10.	Quasi-experiment
Wang L, Chen J, Zou M. Influence of infusion of gastric fluid retention on gastric remnant and its complications in critical ICU patients. <i>Chin Nurs Res</i> 2017; 2:226-228	Article in Chinese; unable to access full text
Wen Z, Xie A, Peng M, Bian L, Wei L, Li M. Is discard better than return gastric residual aspirates: a systematic review and meta-analysis. <i>BMC Gastroenterol.</i> 2019;19(1):113. Published 2019 Jun 28. doi:10.1186/s12876-019-1028-7	Meta-analysis; studies reviewed