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Drain versus no-drain after gastrectomy for patients with advanced gastric cancer

Student EBM presentations

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The question

Mr X is a 56 year-old suffering from advanced gastric cancer and is due for gastrectomy. He wants to spend as little time as possible in hospital.

P	Patients with advanced gastric cancer undergoing gastrectomy
I	Prophylactic post-surgical placement of abdominal drains
C	No prophylactic post-surgical abdominal drain
O	Length of hospital stay post-surgery

In patients with advanced gastric cancer who are undergoing gastrectomy, could post-surgical placement of an abdominal drain reduce the length of hospital stays?

The search and search results

"Gastrectomy"[Mesh]

25866 results

("Drainage"[Mesh]) AND "Gastrectomy"[Mesh]

469 results

(("Drainage"[Mesh]) AND "Gastrectomy"[Mesh]) AND "Stomach Neoplasms"[Mesh]

81 results

((("Drainage"[Mesh]) AND "Gastrectomy"[Mesh]) AND "Stomach Neoplasms"[Mesh]) AND hospital stay

6 results

Dig Surg. 2011;28(3):178-89. doi: 10.1159/000323954. Epub 2011 May 4.

Drain versus no-drain after gastrectomy for patients with advanced gastric cancer: systematic review and meta-analysis.

Liu HP[1], Zhang YC, Zhang YL, Yin LN, Wang J.

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The study appraisal

Key factors	Notes	Check?
Main question	**P**: patients with GC who underwent gastrectomy | **I**: drain | **C**: no drain | **O**: incidence of wound infection, postoperative pulmonary infection, intra-abdominal abscess, mortality, number of postoperative days until passing of flatus and initiation of soft diet, incidence of postoperative complications, **length of hospital stay**	
Comprehensive search	- **DATABASES**: PubMed, the Cochrane Library, Embase, the Chinese biomedicine literature database, the Chinese technological periodical full-text database and the Chinese periodical full-text database - **TERMS**: 'gastric cancer', 'gastrectomy', and 'drains' used in combination with the medical subject headings - **REFERENCE LISTS**: also hand-searched the reference lists of every primary study for additional publications - Further searches were done by reviewing abstract booklets and review articles - **OTHER**: companies and researchers in the field were contacted to identify any ongoing or unpublished studies	

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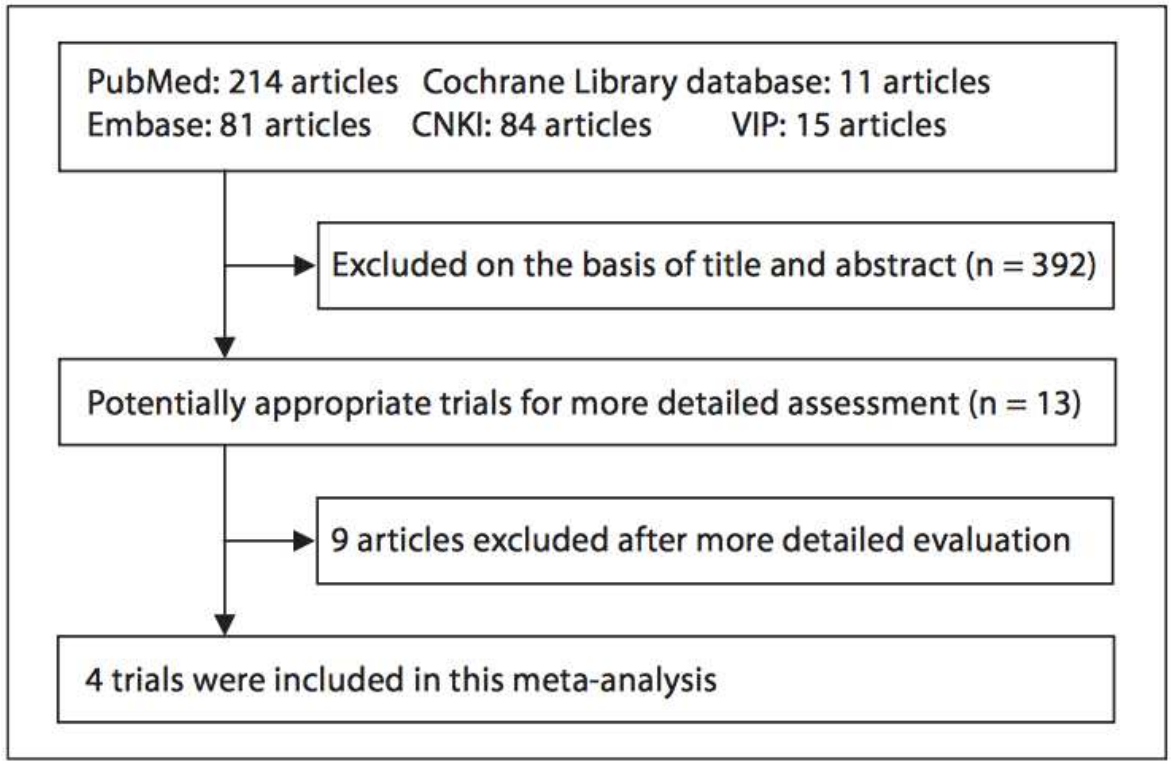
The study appraisal



Each study was independently reviewed by two researchers for eligibility. Only the RCTs for gastrectomy with or without abdominal drains for patients with GC were included and analyzed in the meta-analysis. Two researchers extracted data separately. Any disagreements were then resolved by consensus.

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The study appraisal

Key factors	Notes	Check?
Inclusion/exclusion of studies	- Stated "only RCTs" but did not clarify what type of RCT (?parallel) - **INCLUSION**: Patients with GC who underwent open gastrectomy, regardless of whether it was radical or palliative, D1 or D2 lymph node dissection, total or subtotal gastrectomy, were included. No restriction on age or sex - **EXCLUSION**: Patients with severe cardiovascular, respiratory, hepatic, or renal disease	
Quality of studies	- "methodological quality of the studies was independently assessed by three reviewers, based on criteria of randomization, double-blinding, and description of withdrawals and dropouts" - No critical appraisal or objective scoring system	

Table 2. Methodological quality of the included RCTs

Reference (first author)	Randomization	Allocation concealment	Blinded	Incomplete outcome data addressed	Free of selective reporting	Free of other bias
Kim* [13]	yes	unclear	no	yes	unclear	unclear
Kim# [13]	yes	unclear	no	yes	unclear	unclear
Alvarez Uslar* [9]	yes	unclear	no	yes	unclear	unclear
Kumar# [14]	yes	unclear	no	yes	unclear	unclear
Jiang*,# [15]	yes	unclear	no	no	unclear	unclear

* Patients underwent total gastrectomy. # Patients underwent subtotal gastrectomy. → Performed sub-group analysis

The study appraisal

Table 1. Characteristics of the included RCTs

Reference (first author)	Year	Country	Age		Interventions		Surgical outcome
			no-drain group	drain group	no-drain group	drain group	
Kim* [13]	2004	Korea	55.9 (12.5)	56.1 (10.1)	21	31	operating time, splenectomy, analgesic use, passage of flatus (POD), initiation of soft diet (POD), complications, hospital stay
Kim# [13]	2004	Korea	54.9 (11.4)	58.5 (7.5)	63	55	operating time, analgesic use, passage of flatus (POD), initiation of soft diet (POD), complications, hospital stay
Alvarez Uslar* [9]	2005	Chile	61.2 (42–79)	60.6 (36–78)	31	29	complications, incidence of reinterventions, initiation of soft diet (POD), hospital stay, hospital mortality
Kumar# [14]	2007	Nepal	57.54 (13.45)	54.34(11.23)	52	56	operating time, passage of flatus (POD), initiation of soft diet (POD), hospital stay (POD), complications, hospital mortality
Jiang*,# [15]	2008	China	56.7 (12.4)	57.3 (15.4)	51	49	operating time, passage of flatus (POD), initiation of soft diet (POD), hospital stay, complications, hospital mortality

POD = Postoperative days. * Patients underwent total gastrectomy. # Patients underwent subtotal gastrectomy.

No European studies…

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The study appraisal

Key factors	Notes	Check?
Homogeneity	- Statistical heterogeneity was measured by graphic examination of forest plots and statistically through a homogeneity test based on the x^2 test in which $p<0.10$ was considered to be significant for heterogeneity	

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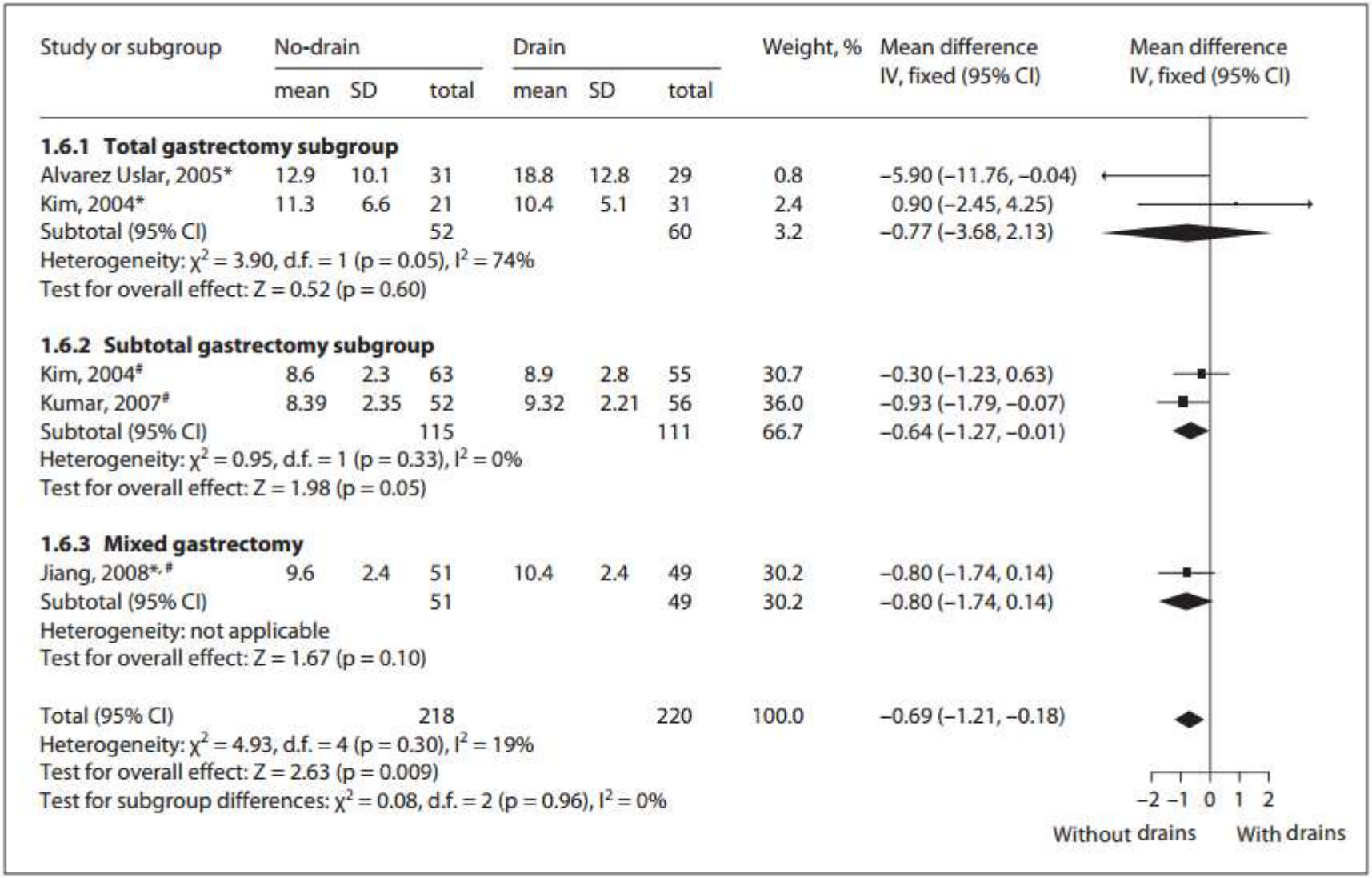

Fig. 7. Hospital stay after gastrectomy. * Patients underwent total gastrectomy. # Patients underwent subtotal gastrectomy.

The Results (interpretation of findings/synthesis)

- *The length of hospital stay for patients in the no-drain group after gastrectomy was 0.69 (95% CI -1.21, -0.18) days shorter than in the drain group (p = 0.009)*
  - There are no significant harms :there were no differences between the drain and no-drain groups in the incidence of wound infection, postoperative pulmonary infection, intra-abdominal abscess, mortality, number of postoperative days until passing of flatus and initiation of soft diet.

- Heterogeneity
  - Eyeball Test
  - X^2 total gastrectomy p=0.05, subtotal gastrectomy p=0.33,
  - I^2 total gastrectomy 74%, subtotal gastrectomy 0%
  - Total: X^2 p=0.3, I^2 = 19%

- Clinical acceptability of pooling
  - Population: Also, though our patient is of a similar age to those used in the systematic review, the other studies are from Asian countries with different cultural, medical, genetic, social and other factors.

- Poor quality studies due to unconcealed allocation and blinding (but due to impossibility of doing this)

- Small number of studies

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The Implications for my patient

- The included trials are of poor quality and are not applicable to our patient's condition
- However there is an indication that avoiding the use of abdominal drains may shorten hospital stay after gastrectomy without increasing risk of other complications to the patient.
- In this case, the evidence (or lack thereof) will be explained to the patient to aid in his decisionmaking. However patient must be monitored to ensure safety.
- Further literature searching and critical appraisal is warranted if possible