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Do probiotics/synbiotics reduce postoperative infection rates following elective colorectal surgery?

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Key takeaways

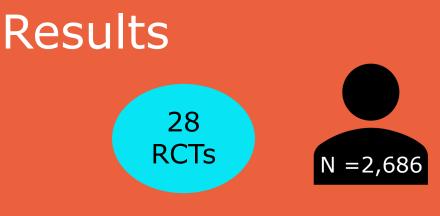
- Perioperative probiotics/synbiotics nearly halve total postoperative infection rates within 30 days of elective colorectal surgery.
- Optimal regimens have not been determined and further work is required prior to perioperative probiotics/synbiotics being implemented into clinical practice.

Introduction

Postoperative infections are common in elective colorectal surgery despite advances in surgical technique and perioperative care.

Is the gut microbiome an underappreciated source of postoperative infections?

Can perioperative probiotics/synbiotics postoperative infections by optimising the gut microbiome?



↓ Total postoperative infections RR 0.55, 95% CI 0.41 to 0.74, p<0.0001



Pneumonia RR 0.43, 95% CI 0.29 to 0.66, p=0.0001

Conduct a systematic review and meta-

analysis on the efficacy of perioperative probiotics or synbiotics on postoperative infection rates within 30 days of elective colorectal surgery.

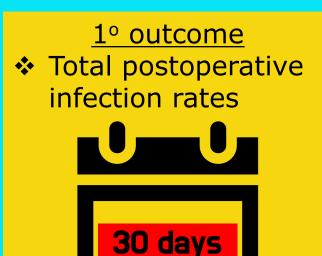
Methods

Probiotics/synbiotics placebo/standard care

6 databases

PRISMA 2020 guidelines

- $\overline{\checkmark}$ \Box 18+ years
- Elective colorectal resection for malignant or benign disease
- □ Receiving probiotics or synbiotics within 30 days before or after surgery
- □ RCTs
- □ Reporting on any of our 1° or 2° outcomes



- No available full
 - text
- □ Acute or emergency colorectal surgery

2° outcomes

- ✤ Surgical site infections
- Pneumonia
- Urinary tract infections
- Anastomotic leak
- ✤ Line infections
- ✤ Sepsis
- ✤ Ileus
- ✤ Length of stay
- ✤ Duration of postoperative antibiotics
- ✤ Time to first bowel motion
- ✤ Mortality



↓ Urinary tract infections RR 0.54, 95% CI 0.32 to 0.94, p=0.03



↓ Wound infections RR 0.64, 95% CI 0.51 to 0.81, p=0.0002



↓ Line infections RR 0.34, 95% CI 0.15 to 0.74, p = 0.007



↓ Ileus RR 0.27, 95% CI 0.08 to 0.93, p = 0.04



↓ Length of stay MD -0.99 days, 95% CI -1.87 to -0.11, p=0.03

X No significant reduction in anastomotic leak, intra-abdominal abscesses, sepsis, mortality, duration of postoperative antibiotics or time to first bowel motion.

Conclusions

Perioperative probiotics/synbiotics significantly \downarrow total postoperative infection rates within 30 days of elective colorectal surgery.

Future research should focus on high quality RCTs with detailed descriptions of regimens and clearly defined postoperative infection criteria.

Wound, line and ileus icons from Noun Project CC BY 3.0

Non-RCTs