

The usefulness of target trial emulations to enhance the field of Gastroenterology

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Target trial emulation is a causal inference methodology that replicates randomised trial design using observational big data, overcoming ethical and feasibility limitations of traditional RCTs in gastroenterology.

KEY POINTS

- The speaker presented a target trial emulation study on aspirin in Swedish patients with colorectal polyps, reporting that after eight years median follow-up, aspirin reduced cancer incidence from 8% to 6% but showed no difference in colorectal cancer mortality and increased all-cause mortality with a hazard ratio of 1.8, likely due to bleeding-related deaths.
- Target trial emulation allows causal inference by replicating randomised trial methodology with pre-specified protocols, eliminating immortal time bias and prevalent user bias that produce misleading results in traditional observational designs.
- The method requires three criteria for causal inference: conditional exchangeability, positivity, and well-defined interventions that could theoretically be randomised.
- Key advantages include cost-effectiveness using existing data, ability to include patients typically excluded from trials, quick assessment of new questions, and generation of clinically meaningful absolute risk estimates.
- Limitations include potential residual confounding, selection bias due to non-random treatment allocation influenced by clinical judgement, and complex data handling requiring long format data and sophisticated statistical methods.
- The speaker stated that successful implementation requires collaboration between a good clinician to specify a realistic trial protocol and a good statistician to handle the complex data analysis.

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