Agreement of treatment effects estimates from observational studies and RCTs evaluating therapeutics for COVID-19

Main takeaways

1. More than three quarters of the matched pairs had treatment effects that were in agreement.
2. Meta-analyses of observational studies and RCTs evaluating therapeutics for the treatment of COVID-19 more often than not have summary treatment effect estimates that are in agreement in terms of direction and statistical significance.

Take a picture to download the **abstract & poster**

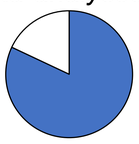
What we found

*Of all **matched observational study and RCT pairs** comparing hydroxychloroquine, lopinavir-ritonavir, or dexamethasone to an active or placebo comparator for any safety or efficacy outcomes of covid-19, **78%** (21 of 27 matched pairs) **had treatment effects that were in agreement***

A**greement was higher** in matched pairs of **meta-analyses of observational studies and meta-analyses of RCTs** (82%) than in those of only one observational study and/or one RCT (70%).

POOLING EVIDENCE ACROSS STUDIES

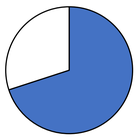
***meta-analyses** of obs. studies and meta-analyses of RCTs*



82%
14 / 17 pairs

VS

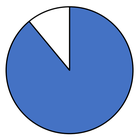
***at least one** observational study and/or one RCT*



70%
7 / 10 pairs

OUTCOME TYPE

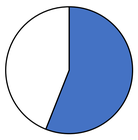
***dichotomous** outcomes*



89%
16 / 18 pairs

VS

***continuous** outcomes*



56%
5 / 9 pairs

A**greement was higher** in matched pairs of evaluating **treatment effects for dichotomous outcomes** (89%) than in those evaluating treatment effects for continuous outcomes (56%).

What is already known

- **RCTs** are generally **considered the gold standard** for studying clinical treatments, but have **substantial limitations**
- The **covid-19 pandemic** has **highlighted the potential role of observational studies** to provide insight, although concerns have been raised about rapid dissemination of **potentially low quality evidence**
- Little is known about the **agreement between** individual or meta-analyzed **observational studies and RCTs** evaluating the same covid-19 treatments, comparators, and outcomes

What we did

- **Identified individual RCTs or meta-analyses of RCTs**, as well as **individual observational studies** evaluating the same interventions, comparisons, and outcomes
- **Treatment effect estimates** from observational studies were identified, standardized, and meta-analyzed to match individual RCTs or meta-analyses of RCTs
- The **direction and statistical significance of treatment effect estimates** and the distribution of **study demographics** from matched pairs was then compared

What does it mean

Meta-analyzed evidence from observational studies can complement, but should not replace, RCT evidence

Limitations:

- Only considered top three interventions evaluated for covid-19
- Most treatment effect estimates were null values
- More than half of matched pairs had all obs. studies published before all RCTs

Come find me!
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Team

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