Data show no evidence that chronic disease treatment efficacies depend on number of comorbidities

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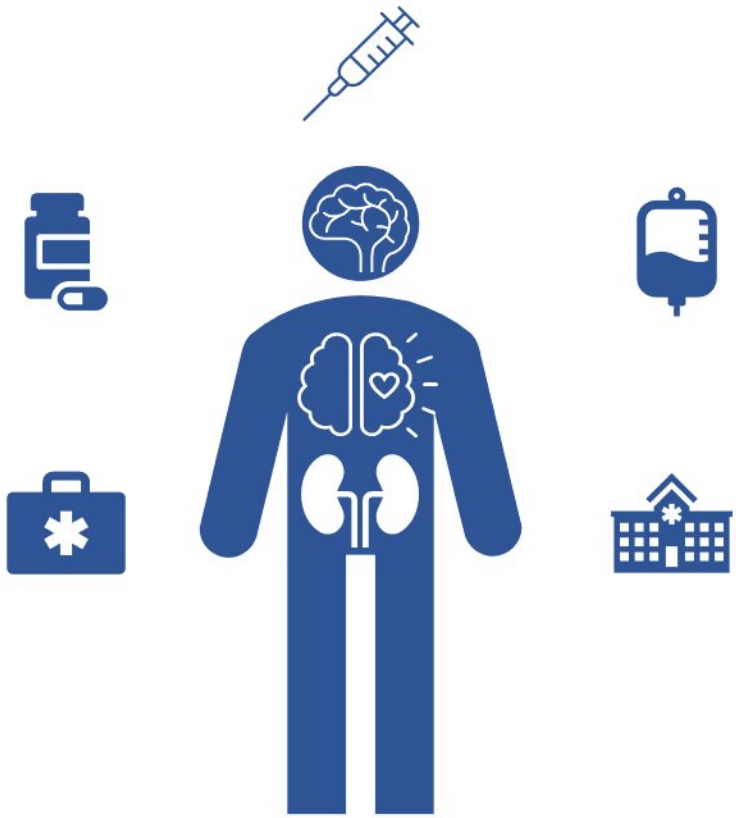

Researchers analyzed 120 previous clinical trials, finding no evidence that treatment efficacies depend on number of comorbidities. Credit: Peter Hanlon (CC-BY 4.0, creativecommons.org/licenses/by/4.0/)

Treatment efficacy for a broad range of chronic diseases does not differ depending on patients' comorbidities, according to a new study publishing June 6 in the open access journal *PLOS Medicine* by David McAllister of the University of Glasgow, UK, and colleagues.

There is often uncertainty about how treatments for single conditions should be applied to people who have multiple chronic conditions (multimorbidity). This confusion stems, in part, from the fact that people with multimorbidity are under-represented in randomized controlled trials, and trials rarely report whether the efficacy of treatment differs by the number of comorbidities or the presence of specific comorbidities.

In the new study, the researchers used existing data from 120 industry-sponsored randomized controlled phase 3 and 4 clinical trials carried out between 1990 and 2017. The dataset included a total of 128,331 participants and spanned 23 common long-term conditions, including asthma, diabetes, hypertension, osteoporosis, and migraine. For each trial as well as each treatment type spanning multiple trials, the team modeled whether there were any interactions between treatment efficacy and comorbidities.

Across trials, the percentage of participants with three or more comorbidities ranged from 2.3% (in allergic rhinitis trials) to 57% (in trials for systemic lupus erythematosus). Overall, the new study found no evidence of comorbidities modifying treatment efficacy across any of the 23 conditions studied. However, the authors noted that the trials were not designed to assess variation in treatment efficacy by comorbidity.

"The standard assumption used in evidence syntheses is that efficacy is constant across subgroups, although this is often criticized," the authors say. "Our findings suggest that for modest levels of comorbidities, this assumption is reasonable."

Co-author Peter Hanlon adds, "Many people live with multiple long-term conditions, however deciding on the most appropriate treatment for these people is often challenging because clinical trials rarely report whether treatments work as well in people with multiple conditions and clinical guidelines rarely address the specific needs of these people. We found that treatments had similar effects in people with multiple conditions, which is important as this information can be used to help experts decide which treatments they should recommend in clinical guidelines."

More information: Hanlon P, Butterly EW, Shah AS, Hannigan LJ, Lewsey J, Mair FS, et al. Treatment effect modification due to comorbidity: Individual participant data meta-analyses of 120 randomised controlled trials, *PLoS Medicine* (2023). DOI: 10.1371/journal.pmed.1004176