Letter to the Editor

Results of meta-analysis should be interpreted with caution

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We read with interest a recent article by Cai *et al.* in *Annals of Palliative Medicine*, which analyzed the effects of aerobic exercise combined with resistance training on urea dialysis clearance rate, physical functioning, mental health status, and social functioning in maintenance hemodialysis (MHD) patients from a perspective of systematic review and meta-analysis (1). We do not doubt the results that exercise is "good medicine" for MHD patients. However, several methodological issues of the authors lead us to question the legitimacy of their results and conclusions.

First, the search strategy listed by the authors was flawed. It is well known that both the Cochrane Library and PubMed databases provide standardized subject terms, i.e., medical subject headings (MeSH). In the case of "exercise", for example, the MeSH terms "resistance training (https://www.ncbi.nlm.nih.gov/mesh/?term=resistance+training)", "exercise (https://www.ncbi.nlm.nih.gov/mesh/68015444)", and "exercise therapy (https://www.ncbi.nlm.nih.gov/mesh/68005081)" are provided. Appropriate subject terms and broad free text words should be selected to retrieve as many relevant records as possible. In particular, the authors were missing the search term "resistance training", which may have led to some missing studies.

Second, we note that the authors' purpose was to evaluate the application value of aerobic exercise combined with resistance training in MHD patients. However, not all the included studies used this exercise type as an intervention. For example, Abreu *et al.* (2) and Dong *et al.* (3) implemented resistance training only in the exercise group, so why were these studies included in this meta-analysis?

Third, the data extracted by the authors were incorrect. The problem appears in *Fig. 4* of the original article, where the data for Xu *et al.* (4) (a study published in Chinese) in the forest plot were baseline data, not the post-intervention means and standard deviations. It is actually 72.75±8.83 (n=40) *vs.* 67.80±7.07 (n=41). After correcting for the authors' included data and excluding the Abreu *et al.* (2) study, the results of the fixed-effects model, including the four studies, showed a mean difference of 3.43 (95% CI: 0.83 to 6.03, I^2=0.0%), higher than the authors' erroneous conclusion.

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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