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Chinese herbal medicine supplementation therapy on COVID-19

Dear Editor,

Recently, Xiong et al. [1] published in a recent article in the journal a systematic review and meta-analysis based on 18 randomized controlled trials (RCTs) to evaluate the clinical evidence on Chinese herbal medicine (CHM) for the treatment of COVID-19. Their results demonstrated that compared with the western medicine group, CHM group had significant improvements in lung CT, clinical cure rate, length of hospital stay, clinical symptoms and so on. In addition, they found no severe adverse effects in the CHM group. We have read this paper with great interest and found three issues that should be considered.

First, this meta-analysis claimed to include 18 RCTS, but some of the included studies were actually retrospective observational research (references 17, 18, 21–24, 27 in Xiong et al.'s [1] study). RCT is a study design that randomly assigns participants into an experimental group or a control group. As the study is conducted, the only expected difference between the control and experimental groups in a randomized controlled trial is the outcome variable being studied [2]. These seven included studies mentioned above only collected the medical records of some COVID-19 patients treated with integrated Chinese and western medicine over a period of time. Thus, we believe that these seven studies cannot be regarded as RCTS and should be removed from the included studies.

Second, thirty-one different CHM were included in this meta-analysis, which actually should be treated in different groups. It is inappropriate to pool all Chinese medicines in one experimental arm to claim that all Chinese medicines are useful. Similarly, it is also questionable to simply merge “antiviral drugs” in the control arm. As there are 100 Chinese herbs in the experimental arm, the design of this study is somehow questionable and misleading to claim that all Chinese medicines are effective and safe against COVID-19. An ideal design should be one compound or one drug in one experimental arm, then use a control with the standard regimen [3]. However, this meta-analysis did not provide such data.

Third, this study did not consider the disease severity in the CHM and control groups. It is known that some mild and moderate patients could recover even without any treatment. Critically ill patients are however treated by many drugs and methods such as ventilators. This study merged all these patients into the treatment group and the control group, which are somehow inappropriate.

Taken together, the results of the study by Xiong et al. [1] should be interpreted with caution. We hope that this comment will contribute to

more accurate elaboration and substantiation of their findings.

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Declaration of Competing Interest

The authors report no declarations of interest.

References

- [1] X.J. Xiong, et al., Chinese herbal medicine for coronavirus disease 2019: a systematic review and meta-analysis, *Pharmacol. Res.* 160 (2020), 105056.
- [2] K.F. Schulz, D.G. Altman, D. Moher, CONSORT Group, CONSORT, 2010 statement: updated guidelines for reporting parallel group CONSORT randomised trials, *BMJ* 340 (2010) c332.
- [3] R. DerSimonian, N. Laird, Meta-analysis in clinical trials, *Control Clin Trials* 7 (1986) 177–188.

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