

Letter to the editor “Prognostic value of microRNAs in colorectal cancer: a meta-analysis”

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Dear editor

The systematic review and meta-analyses published by Gao et al¹ regarding the topic of microRNAs as prognostic markers in colorectal cancer (CRC) has been of great interest to us. Although previous systematic reviews and meta-analyses highlighting the prognostic value of miRNAs as prognostic markers in CRC exist, each of those studies is primarily focused on a single miRNA per study.^{2,3} Gao et al,¹ via this expansive study, have managed to assess and highlight the prognostic utility of a variety of miRNAs in CRC. Both miR-21 and miR-181 have been highlighted in previous studies as being potential prognostic markers, but interestingly, Gao et al's¹ study is the first to highlight miR-224 and miR-141 as strong prognostic biomarkers, specifically in CRC.

Although the systematic review and meta-analysis does provide a comprehensive analysis of currently existing literature on miRNAs as prognostic markers in CRC, the pool of literature available, is itself too small to provide any conclusive evidence. This is reflected in the conclusions drawn about miR-141 as a strong prognostic marker in CRC. On first glance, the pooled hazard ratio (HR) of 2.52 (95% CI 1.68–3.77) for miR-141 indicates a strong prognostic effect; however, further observation shows that only two studies were included to generate this result. Additionally, when we consider that even more well-established prognostic indicators such as perineural invasion and high lymph node ratio are associated with HRs for poor overall survival of <2.5, the conclusions reached by Gao et al's¹ study, regarding miR-141 seem imprecise, requiring further validation.⁴

Furthermore, the mean effect estimate of HR is used more in meta-analysis when compared to the parameters of statistical significance and sample size of studies. This is primarily due to the binary interpretation of statistical data that statistical significance as a parameter promotes, simply indicating whether an intervention works or not. On the other hand, effect size as a parameter provides more clinical utility as it examines the validity of the intervention in a range of contexts.⁵ As Gao et al's¹ study focuses primarily on statistical significance as the method of comparison, we would like to suggest the inclusion of analysis based on the mean effect estimate of HR as well, so as to estimate the possible clinical utility of the presented results.

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We acknowledge that a systematic review and meta-analysis is defined by the quality of studies included and the issues caused by a lack of published research in the field of miRNAs as prognostic markers in CRC cannot be attributed to Gao et al¹ or the meta-analysis study itself. We would simply like to indicate that the conclusions currently provided may not be considered absolute, and an updated review few years down the line with more studies included may serve to provide a more comprehensive idea regarding the topic.

Disclosure

The authors report no conflicts of interest in this communication.

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Authors' reply

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Dear editor

Thanks for your letter to our study. To begin with, I agree with you that the pool of a small literature may lead to relatively unreliable conclusion. However, we have tried our best to collect relevant articles in the research field of colorectal cancer, and the number of them was fixed and usually limited. In addition, we are also in favor of your opinion that when it comes to perineural invasion and high lymph node ratio, the conclusions reached by us seem imprecise. This limitation is caused by the truth that we only focused on the data regarding patients' survival results. Finally, thank you for your constructive suggestions about the inclusion of analysis based on the mean effect estimate hazard ratio. In a word, our study has several limitations which currently cannot be solved, and a larger sample size study and prospective clinical trials are urgently needed.

Disclosure

The authors report no conflicts of interest in this communication.

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