



Investigation of the value of miR-21 in the diagnosis of early stage HCC and its prognosis: a meta-analysis

S.R. Yan¹, Z.J. Liu², S. Yu¹ and Y.X. Bao¹

¹Clinical Laboratory Department,
The Second Affiliated Hospital of Chongqing Medical University,
Chongqing, China

²Department of Clinical Medicine, Xinjiang Medical University,
Xinjiang, China

Corresponding author: Y.X. Bao
E-mail: yixibao@163.com

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ABSTRACT. The diagnostic and prognostic value of miR-21 has been examined for hepatocellular carcinoma (HCC), with inconsistent results. Present meta-analysis summarized the diagnostic accuracy and the predictive role for survival of miR-21 in patients with HCC. All eligible studies were searched using PubMed, EMBASE, and Chinese National Knowledge Infrastructure (CNKI) databases up to October 2014. For the diagnostic meta-analysis, the indices of miR-21 in the diagnosis of HCC were pooled using bivariate random-effect approach models. For the prognostic meta-analysis, data were synthesized with a random effect model, and the hazard ratio (HR) or odd ratio (OR) with its 95% confidence interval (95%CI) was used as the effect size estimate. Ten studies dealing with HCC were included. The overall pooled results for sensitivity, specificity, and the area under the curve (AUC) for the diagnostic meta-analysis (five studies) were 74.0 (95%CI = 61.0-85.0), 78.0 (95%CI = 67.0-86.0), and 0.83 (95%CI = 0.80-0.86), respectively.

The combined data for the prognostic meta-analysis (seven studies) suggested that miR-21 overexpression in HCC correlated with poor overall survival [HR = 1.19 (95%CI = 0.44-1.94)], and higher miR-21 expression was associated with tumor, node, metastases (TNM) stage [OR = 0.34 (95%CI = 0.13-0.91)]. We concluded that miR-21 might be complementary to alpha fetal protein in HCC diagnosis, and might serve as an attractive estimator of HCC. We also demonstrated that miR-21 overexpression was associated with HCC TNM stage and with poor survival. As our study was limited, additional prospective studies are needed to validate these results.

Key words: MiR-21; HCC; Diagnosis; Prognosis; Biomarker