Clinical significance of microsatellite instability in gender-dependent patients with right-sided colorectal cancer

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Introduction: Colorectal cancer (CRC) with microsatellite instability (MSI) are known to have better prognosis compared to those with microsatellite stable (MSS). Recent studies reported that there are biological differences according to tumor location in CRC. In this study, we aimed to identify the clinical significance of MSI in patients with right-sided CRC.

Methods: Between October 2004 and December 2016, medical records from a total of 1,009 patients with CRC were retrospectively reviewed. Patients with MSI testing were included in the analysis. We assessed the long-term outcomes of MSI according to the tumor location using the Kaplan-Meier curves and Cox regression models.

Results: The median follow-up duration was 25 months (interquartile range, 15 - 38). The patients with MSI were 124 (12.3%) and those with right-sided CRC were 250 (24.8%). The patients with MSI who have right-sided CRC showed better disease-free survival (DFS) than those with MSS in Log-rank test (p=0.013). And these results were prominent in female (p=0.035), but not in male who have right-sided CRC. In multi-variate Cox regression analysis, MSS was significant risk factor predicting poor DFS in patients with right-sided CRC (HR 3.21, 95% CI 1.13 - 9.14, p=0.029), and these results were found only in female patients (HR 4.83, 95% CI 1.06 - 21.95, p=0.042).

Conclusion: In this study, we identified that MSI is a useful factor to predict DFS in patients with right-sided CRC, especially in female patients.