

MICROSATELLITE INSTABILITY: AN INDEPENDENT PREDICTOR OF OUTCOME IN COLORECTAL CANCER

Eugene Y. Chang, MD, Paul B. Dorsey, MS, Nathalie Johnson, MD, Louis Homer, MD, PhD, Deb Walts, MSN, William Johnson, MD, George Anadiotis, DO, Joseph Frankhouse, MD

Legacy Health System, Surgical Associates, Portland, Oregon

Introduction: Microsatellite instability (MSI) is a genomic aberration reported to occur in 15% of colon cancers and has been associated with hereditary non-polyposis colon cancer (HNPCC). MSI expression is also thought to be associated with less aggressive tumor biology. We sought to evaluate incidence of MSI and prognostic significance in our general colon cancer population.

Methods: Prospective analysis of patients, without age restriction, undergoing resection of colorectal cancer in a community hospital system. Information on family history, pathology, and subsequent clinical follow up was obtained. Tumors were evaluated for MSI. Results were classified as no MSI, low-frequency MSI (MSI-L), or high-frequency MSI (MSI-H) based on a standard panel of 11 markers. Comparisons were made using Fisher's exact test (bivariate analysis) and Mantel-Cox log rank test* (survival curve analysis).

Results: Over two years, 140 of 240 eligible patients consented for study. Forty-four had tumors with MSI-H, 11 with MSI-L, and 85 with no MSI. The incidence of MSI-H was 31%.

	MSI-L or no MSI (n=96)	MSI-H (n=44)	
Significant family history	8 (9%)	5 (11%)	$p=0.756$
Lymph node positivity	36 (38%)	11 (25%)	$p=0.179$
Local recurrence	3 of 93 (7%)	2 (5%)	$p=0.656$
Distant recurrence (Overall)	23 of 93 (25%)	2 (5%)	$p=0.004$
Distant recurrence (Stage III)	7 of 22 (32%)	0 of 10	$p=0.069$
Other primary malignancies	9 (9%)	11 (25%)	$p=0.020$
Disease free survival at 3 yrs (Stage III)	41%	100%	$p=0.036^*$

Conclusion: The prevalence of MSI-H in the general colorectal cancer population may be higher than previously reported. Among Stage III patients, colorectal tumors with MSI-H had longer disease-free survival and trended toward lower incidence of distant recurrence. Patients with MSI-H were more likely to have additional cancer diagnoses, which suggests heightened screening for other malignancies in this population.