INTRODUCTION

• Microsatellite instability (MSI), caused by DNA mismatch repair (MMR) deficiency, is observed in up to 15% of colorectal cancers, and it has important implications in treatment and prognosis.

• Despite NCCN-guideline recommendations to broaden testing in 2014 (all patients age <70 and/or stage II), the impact of these recommendations on MSI/MMR testing in the US is unclear.

OBJECTIVES

1. Evaluate MSI/MMR testing trends over time
2. Identify factors associated with appropriate MSI/MMR testing
3. Assess hospital-level variation in MSI/MMR testing

METHODS

• Patients diagnosed with invasive colon adenocarcinoma between 2010 and 2017 who were less than 70 years old or had stage II disease were identified in the National Cancer Database.

• The primary outcome was receipt of MSI/MMR testing.

• Trends were evaluated by comparing pre-guideline (2010-2014) and post-guideline (2015-2017) periods.

• Patient, tumor, treatment, and hospital factors associated with MSI/MMR testing were assessed by hierarchical multivariable logistic regression.

RESULTS

• A total of 280,099 patients at 1,348 hospitals were included. Overall, 30.3% received MSI/MMR testing.

• There was a significant increase in testing after guideline recommendations (pre: 25.2% vs post: 38.2%; OR 2.15, 95% CI 2.11-2.20).

• Patients were more likely to receive testing post-guideline release if younger (<50 vs 50-69 years: OR 1.27, 95% CI 1.21-1.34), later year of diagnosis (2017 vs 2015: OR 1.72, 95% CI 1.66-1.78), treated at an academic facility (OR 1.26, 95% CI 1.09-1.44), underwent surgery (OR 4.17, 95% CI 3.88-4.48), or received chemotherapy (OR 1.20, 95% CI 1.15-1.26).

CONCLUSION

• Rates of MSI/MMR testing has increased over time but adherence to guideline recommendations remains low.

• Predictors of low MSI/MMR testing included patient, tumor, and treatment factors.

• Significant hospital variation exists in MSI/MMR testing guideline adherence, which appears to be driven by non-patient related factors.

• MSI/MMR testing is an ideal target for national quality improvement efforts to improve colorectal cancer care.

LIMITATIONS

• This study is retrospective in nature, and therefore only association can be ascertained.

• Guidelines for MSI/MMR testing has rapidly changed in the past decade.

• Further work will need to be done to characterize the unmeasured factors leading to hospital-level variation.

CONTACT INFORMATION

Rachel H. Joung: haesoo.joung@northwestern.edu
Ryan P. Merkow: ryan.merkow@northwestern.edu