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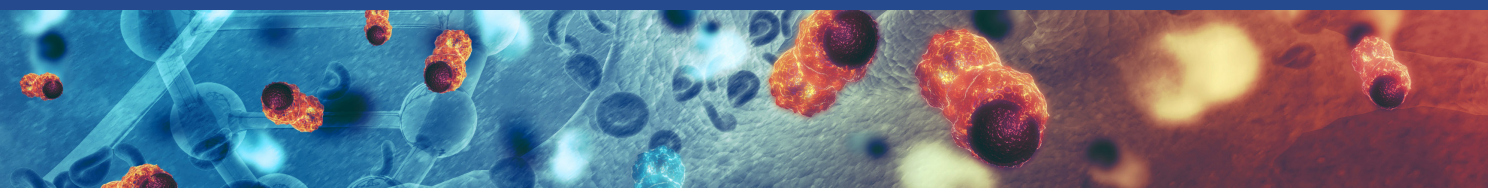
CASE STUDY

Improved Management of Metastatic Colorectal Cancer (mCRC) through Real World Data Insights and Tumor Board Embedded Physician Education



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IMPORTANCE

Oncologists face a problem of growing information burden driven by the latest scientific advances and ongoing research. This problem is especially true for community oncologists who tend to treat multiple types of cancers. Many lack confidence around the selection of the right biomarker testing platform, interpretation of results, and utilization of this information to guide patient care. Key barriers around the use of multi-marker tumor testing panels include testing not perceived as relevant, defaulting to individual gene tests and difficulty obtaining sufficient tissue. Furthermore, oncologists need to know how to update treatment approaches when a new biomarker is reclassified as actionable by the FDA. For instance, the 2017 ASCP/CAP/AMP/ASCO guidelines on molecular biomarkers in colorectal cancer outlined the role of NRAS/ KRAS/ BRAF mutation testing and MMR/MSI testing. In those guidelines, BRAF p.V600 mutational analysis is recommended for prognostic stratification and to evaluate for Lynch syndrome risk. The role of this test evolved in 2020 when the FDA approved encorafenib in combination with cetuximab for the treatment of adult patients with mCRC with a BRAF V600E mutation after prior therapy. In 2020 the FDA also approved pembrolizumab for the first line treatment of patients with unresectable or metastatic MSI- high or MMR-D (mismatch repair deficient) colorectal cancer.

The current NCCN guidelines for colon cancer recommend testing for KRAS, NRAS, BRAF, MSI/MMR, HER2, NTRK, RET and TMB. In February of 2021 the Association of Community Cancer Centers published an article titled "Assessing the status of biomarker testing in metastatic colo-rectal cancer and the challenges faced by community cancer care teams" (1). This demonstrated large panel NGS tests were ordered by only 33% of providers. Single gene tests were routinely ordered by 42% of respondents while 20% ordered a liquid biopsy leaving a large number of patients with advanced disease without recommended testing or the opportunity to participate in targeted therapies.

OBJECTIVE

A regional IDN, working in collaboration with OncoLens and its partners, aimed to improve biomarker testing in patients with metastatic colorectal cancers at three hospitals within the region. Goals included 1) improving the percentage of mCRC patients receiving complete biomarker testing that included all actionable biomarkers, 2) developing and disseminating an optimal biomarker testing pathway for mCRC that could be implemented across other hospitals, and 3) educating providers on the importance of early complete biomarker testing in mCRC. Outcomes and learnings from this project could then be replicated across the entire system of 22 hospitals and 1900+ practice locations to improve the care of these highly complex patients.

DESIGN

The initiative was led by a physician champion but guided by a team of medical oncology, surgery, pathology and other multi-disciplinary team members. A project kickoff and regularly scheduled meetings ranging from every two weeks to every month, depending on the milestones that had to be achieved, were established. An initial multi-stakeholder meeting was convened to discuss biomarker testing processes, and baseline data collection was obtained through electronic medical record and cancer registry data review and analyzed through OncoLens to identify key patterns. The multi-stakeholder meeting was reconvened to review and discuss baseline data findings, draft a problem statement addressing under-utilization of biomarker testing, identify root causes, and brainstorm improvement ideas. Following this, a Plan-Do-Study-Act (PDSA) intervention was implemented. Education was conducted in tumor board settings as outlined below and a reflex testing process was developed where all mCRC tissue was sent to a single reference lab for a limited panel of actionable biomarkers. Final data collection to measure impact was completed after six months of the project. A final multi-stakeholder meeting was conducted to discuss project findings, disseminate this information, and promote project expansion to additional hospitals as well as additional disease sites.

SETTING AND PARTICIPANTS

It was determined existing multidisciplinary meetings or tumor boards would be the best venue to engage providers as all stakeholders were already present as part of an educational forum. From within this group, representatives were selected including a principal investigator and representatives from each specialty to advance the objective of this quality improvement initiative.

OUTCOMES OF INTEREST

Pre-assessment

Baseline data analysis included 98 patients with mCRC, initially diagnosed over four years. 60% received partial biomarker testing that included a minimum of KRAS, BRAF and MSI/MMR. 34.7% of patients received complete biomarker testing. Of note, the baseline data analysis was performed prior to the approval of a RET inhibitor and other approvals that happened after the year 2021. It was identified there was no institutional protocol for biomarker testing in these patients. Pathologists waited to receive an order from Medical Oncology and did not initiate biomarker testing in patients diagnosed, nor did other specialists including gastroenterology or surgery order biomarker testing. There was significant variation observed among different medical oncology groups regarding when, who, and which types of biomarker tests were ordered.

Post-assessment

Quality improvement interventions included both education and process improvement activities. The tumor board meetings, powered by OncoLens, were selected as the education venue and a medical oncologist presented the information to the care teams. Additionally, the QI project team streamlined the workflow to minimize delays in complete biomarker testing and developed a reflex testing protocol for all newly diagnosed metastatic colorectal cancer patients.

RESULTS

Baseline data was collected on 98 patients from a 3-year period, out of which 83 were initially diagnosed and 15 were diagnosed with recurrent disease. After the intervention, an additional 51 patients were analyzed of which 46 were initially diagnosed and five were diagnosed with recurrent mCRC. The study showed partial biomarker testing including KRAS, BRAF and MSI/ MMR increased by 30.2% and complete biomarker testing which included newer biomarkers such as HER2 and NTRK increased by 35.9%.

The team developed an implementation guide, including the reflex biomarker testing workflow, that was shared across the extended healthcare network. Various inefficiencies in the workflow in different hospitals were addressed through the utilization of the OncoLens platform. Clinical leadership recommended the mCRC biomarker testing workflow be incorporated as a system-wide quality initiative.

CONCLUSION

Utilization of an oncology analytics and multi-disciplinary physician engagement solution like OncoLens can be deployed across large hospital systems to increase biomarker testing results in mCRC. Deployment of such tool resulted in a 35.9% increase in mCRC test adherence. Because most of the education was conducted in multi-disciplinary meetings or tumor boards, awareness was improved across the multidisciplinary care team and was applicable for both presented and non-presented mCRC cases. Importantly, repetition was key to improving awareness and retention of behavior change.

REFERENCE

1. mcrc_survey-summary_final-(1).pdf (accc-cancer.org)