Appropriateness and Completion of Multitarget Stool DNA Testing

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ABSTRACT

Introduction: Colorectal cancer (CRC) is the third most prevalent cancer in the United States, with a 4% lifetime incidence. While more clinicians have begun ordering multitarget stool DNA (mt-sDNA) testing due to the COVID-19 pandemic, adherence to guidelines on mt-sDNA and rates of subsequent follow-up testing has not been well studied. We assessed the appropriateness of mt-sDNA orders and rate of high-quality colonoscopy completion following a positive result in a large academic medical center.

Methods: We identified patients ordered for mt-sDNA in primary care and gastroenterology clinics at our institution between April 2020 and July 2021. For each case, we reviewed the appropriateness of mt-sDNA testing, documentation of shared decision making, result of testing, and subsequent follow-up. Appropriateness was defined in accordance to the most recent American College of Gastroenterology guidelines on mt-sDNA use for CRC screening.

Results: Of the 797 patients in our study, 685 (86%) met all appropriateness criteria for mt-sDNA testing (Table 1). Shared decision making was documented in 488 (62%) cases, and the most common reason for ordering mt-SDNA was hesitancy for colonoscopy. 483 patients (61%) completed mt-sDNA testing, of which 74 cases (15%) were positive. Rates of positivity were higher in cases of “inappropriate” (28%) rather than “appropriate” (13.7%) orders (p = 0.01). Colonoscopy was ordered in 73 cases (99%) and completed by 59 patients (80%). Of the 56 patients who underwent colonoscopy at our institution, most had documentation of a high-quality colonoscopy, defined as adequate prep (84%), cecal intubation (93%), visualization of the appendiceal orifice and ileocecal valve (94%), and right colon retroflexion (83%). Sixteen patients (29%) were found with advanced adenomas and 19 (34%) had other adenomas or sessile polyps. Among the 409 patients with negative tests, a 3-year follow-up recommendation was documented for 369 patients (90%).

Conclusion: Most clinicians at our institution identified appropriate patients for mt-sDNA testing and provided appropriate follow-up, and the majority of patients who underwent colonoscopy had documentation of a high-quality colonoscopy. In contrast, there were suboptimal rates of mt-sDNA completion and documentation of shared decision making.
Further studies are needed to identify barriers to documentation of shared-decision making and to completion of high-quality colonoscopies in patients being screened with mt-sDNA.

INTRODUCTION

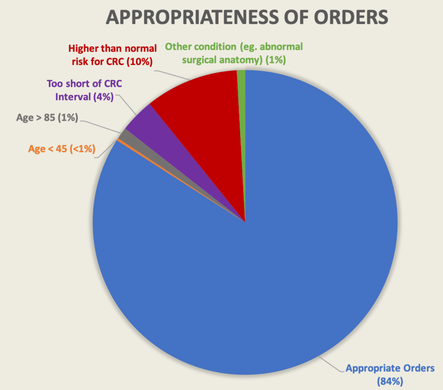
- The lifetime risk of developing colorectal cancer (CRC) is approximately 1 in 25 (4%) [1]
- Approximately 30% of patients between the age of 50-75 are not up to date with CRC screening, of which >60% have never undergone screening [2]
- Throughout the COVID pandemic, there was a significant decrease (~16%) in the rates of colonoscopy, while there was a 7% increase in the rate of stool testing [2]
- Multitarget stool DNA (mt-sDNA) testing has become one of the most popular stool based testing strategies, with an 92% sensitivity and 87% specificity for detection of CRC [3]
- Little data has examined the appropriateness of mt-sDNA orders and rate of appropriate follow up recommendations

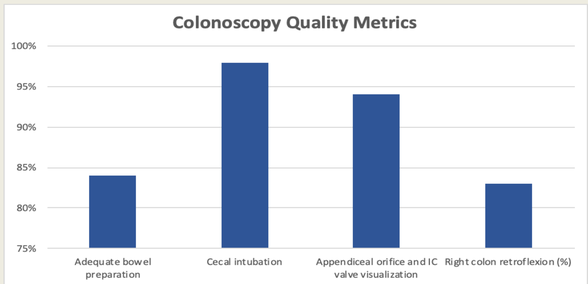
METHODS AND MATERIALS

- Single-center, retrospective study of mt-sDNA orders in primary care and subspecialty GI clinics
- Time course: April 2020 and July 2021
- Metrics analyzed:
  - Demographics
  - History of CRC Screening
  - Indications for mt-sDNA
  - Increased risk for CRC
  - Shared decision making
  - Completion of mt-sDNA testing
  - mt-sDNA results
  - Follow up recommendations
  - High quality colonoscopy metrics
- Data was analyzed via univariate analysis

RESULTS

Appropriateness of Order	N(%)
Order was appropriate (%)	685 (84)
Inappropriate due to patient age < 45 (%)	2 (0)
Inappropriate due to patient age > 85 (%)	10 (1)
Inappropriate because CRC screening was repeated too quickly (%)	29 (4)
Inappropriate as patient is at higher than normal risk for CRC (%)	79 (10)
Other condition (eg. abnormal surgical anatomy) (%)	7 (1)
Shared Decision Making	
Documentation of shared decision making (%)	488 (62)
mt-sDNA was ordered because patient declined colonoscopy (%)	302 (62)
Screening Results	
Completed mt-sDNA screening (%)	483 (61)
Median time to mt-sDNA completion, days (IQR)	25 (17-43)
Positive (%)	74 (15)
Diagnostic colonoscopy was ordered (%)	73 (99)
Completed colonoscopy (%)	59 (80)
Completed colonoscopy at our institution	56 (76)
Median time to colonoscopy, days (IQR)	53 (27-95)
Negative (%)	409 (85)
Documentation of a 3-year follow-up screening recommendation (%)	369 (80)





DISCUSSION

- Although mt-sDNA provides an accurate, non-invasive screening modality for CRC, our study indicates sub-optimal rates (61%) of testing completion
- One component contributing to the lower than expected completion rate could be sub-optimal rates of patient education and shared decision making (62%)
- 16% of mt-sDNA tests were “inappropriate”, which may be due to a multitude of factors, including patient hesitancy with colonoscopy
- For those who completed mt-sDNA testing, correct recall information was given in the majority of cases (80% negative mt-sDNA, 99% positive mt-sDNA)
- Diagnostic colonoscopies exhibited high rates (>80%) of high-quality colonoscopy

CONCLUSIONS

- Despite high rates of appropriate orders, there were suboptimal rates of mt-sDNA completion and documentation of shared decision making.
- Of those with a positive mt-sDNA test, the majority of patients underwent high-quality colonoscopies.
- Further studies are needed to identify barriers to documentation of shared-decision making and to completion of high-quality colonoscopies in patients being screened with mt-sDNA.

REFERENCES

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