Value of Routine Immunohistochemical (IHC) Analysis of Colorectal Cancer to Genetic Counseling Referrals

Avi Galler
Lehigh Valley Health Network, Avi_S.Galler@lvhn.org

Mychailo Fulmes MD, PhD
Lehigh Valley Health Network, Mychailo.Fulmes@lvhn.org

John Park
Lehigh Valley Health Network, John_S.Park@lvhn.org

David Bub
Lehigh Valley Health Network, David_S.Bub@lvhn.org

Michael J. Weiss
Lehigh Valley Health Network, Michael_J.Weiss@lvhn.org

See next page for additional authors

Published In/Presented At

Galler, A., Fulmes, M., Park, J., Bub, D., Weiss, M. J., Namey, T., Augustyn, A. M., & Sinnott, R. (2012). Value of Routine Immunohistochemical (IHC) Analysis of Colorectal Cancer to Genetic Counseling Referrals. *LVHN Scholarly Works*. Retrieved from https://scholarlyworks.lvhn.org/surgery/33

Authors

Avi Galler; Mychailo Fulmes MD, PhD; John Park; David Bub; Michael J. Weiss; Tara Namey; Ann Marie Augustyn; and Robert Sinnott

Value of Routine Immunohistochemical (IHC) Analysis of Colorectal Cancer to Genetic Counseling Referrals

A. Galler, M. Fulmes, J. Park, D. Bub, M. Weiss, T. Namey, A. Augustyn, R. Sinnott

Lehigh Valley Health Network, Allentown, PA

Introduction:

- Identification of patients with hereditary colorectal cancers (i.e. hereditary non-polyposis colon cancer (HNPCC)) is beneficial for implementing screening and interventions for high-risk families.
- Large scale screening for germline mutations, utilizing immunohistochemical (IHC) analysis of mismatch repair (MMR) proteins, has been shown to be feasible, efficient, and recommended for screening for all colorectal cancers.
- Referral to genetic counseling for high-risk individuals with germline mutations is recommended, but have historically been poor (6.9-21.9%).
- Lehigh Valley Health Network (LVHN) instituted routine IHC analysis of all colorectal cancers beginning in January 2011.

Purpose:

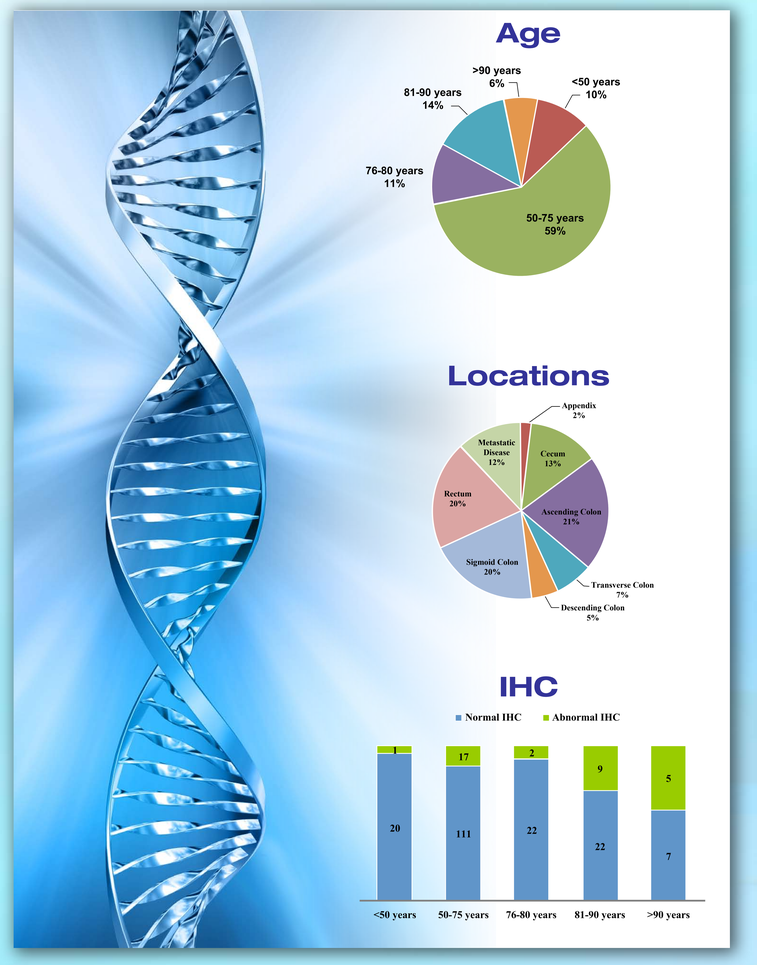
- Compare referral patterns to genetic counseling before and after initiation of routine IHC analysis.

Methods:

- All charts of patients diagnosed with colorectal cancer from July 2010 to June 2011 were retrospectively reviewed.
- Comparison of referral patterns to genetic counseling was performed for the six months prior to institution of routine IHC analysis with the six months following.

Results:

- 216 patients were diagnosed with colorectal cancer between July 2010 and July 2011.
- 12.6% (11/87) and 85.3% (110/129) of patients underwent IHC analysis before and after routine IHC testing, respectively.



Results (continued):

- 34 patients (15.7%) were found to have abnormal expression of MMR proteins.
  - Two patients were identified before and 32 patients after routine analysis
- 9.2% (8/87) of patients were referred before and 14.0% (18/129) of patients were referred to genetic counselin after routine IHC analysis (p=0.29).
- Two patients ultimately were diagnosed with HNPCC (0.9%).

	Pre-Routine IHC Analysis (%)	Post-Routine IHC Analysis (%)	Total (%)
Total Patients	87 (40.3)	129 (59.7)	216 (100)
IHC Analysis	11 (12.6)	110 (85.3)	121 (56)
Abnormal Expression MMR Proteins	2 (2.3)	32 (24.8)	34 (15.7)
Referral to Genetic Counseling	8 (9.2)	18 (14)	39 (18.5)
HNPCC	2 (2.3)	0	2 (0.9)

Conclusions:

- The initiation of routine IHC testing identified more patients with MMR protein non-expression; however, it did not improve overall referral rates for genetic counseling.
- Patient age at diagnosis, family history, and history of multiple tumors appear to be stronger factors towards genetic counseling referrals.
  - The value of routine IHC analysis for entire populations remains unclear.
- Further studies to evaluate initiatives to promote physician and patient education are needed.

References:

1. Hampel H, Frankel WL, Martin E, Arnold M, Khanduja K, et al. Screening for the Lynch Syndrome (Hereditary Nonpolyposis Colorectal Cancer). NEJM 2005:352:1851-60.
2. De la Chapelle A, Hampel H. Clinical relevance of microsatellite instability in colorectal cancer. J Clin Oncol 2010:28:3380-3387.
3. Engstrom PF, Arnoletti JP, Benson AB. NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) Rectal Cancer. Version 3.2011, pg MS-4 – MS-5.
4. Sweet KM, Bradley TL, Westman JA. Identification and Referral of Families at High Risk for Cancer Susceptibility. J Clin Oncol 2002;20:528-537.
5. Hampel H, Sweet K, Westman JA, Eng C. Referral for cancer genetics consultation: a review and compliation of risk assessment criteria. J Med Genet 2004;41:81-91.
6. Wong C, Gibbs P, Johns J, Jones I, Faragher I, et al. Value of database linkage: are patients at risk of familial colorectal cancer being referred for genetic counseling and testing? Int Med J 2008:38;328-333.