Diagnostic Accuracy of Using Colonoscope with Near Focus Capability in Detecting Residual Colorectal Neoplastic Tissue After EMR: A Prospective Study

NCT# 02668198

December 3, 2015

IRB Minimal Risk Protocol Template

General Study Information

Principal Investigator: Michael B Wallace, MD MPH

Study Title: Diagnostic accuracy of using colonoscope with near focus capability in detecting residual colorectal neoplastic tissue after EMR: a prospective study

Protocol version number and date:

Purpose

Hypothesis:

Using standard white light with and without near focus does not provide better sensitivity and negative predictive value compare to narrow band imaging with and without near focus when assessing previous endoscopic mucosal resection (EMR) site for residual neoplasia

Aims, purpose, or objectives:

-   Compare the accuracy of using different endoscopic imaging technique (white light, white light with near focus, narrow band imaging (NBI), NBI with near focus) for detection of residual neoplastic tissue at site of prior EMR

Background (*Include relevant experience, gaps in current knowledge, preliminary data, etc*.):

Residual neoplasia after EMR is a common. Optimal surveillance protocols are not clearly defined. There is a need for better imaging modalities to evaluate for residual disease. Suspected residual tissue can be confirmed with repeat colonoscopy or can be empirically treated. However, this can lead to either frequent colonoscopy or overtreatment. This presents more cost and financial burden to the patient. With the introduction of newer colonscopes that have near focus/zoom capability, it is important to assess whether the near focus technology offers better accuracy for detection of residual neoplastic tissue. With better accuracy to confidently rule out residual neoplasia using newer imaging modality, additional treatment or biopsy at the previous EMR may be avoided. Furthermore, the interval for surveillance colonscopy can be lengthened.

Subject Information – charts, records, images, or specimens are considered 'subjects'

*Target accrual is the proposed number of subjects to be included in your study at your site. "Subjects" may include Mayo Clinic charts, records, or specimens, **and/or** charts, records, or specimens received at Mayo Clinic from external sources for collaborating analysis by the investigator under this IRB application*:

Target accrual: 200 Patients

Subject population:

Patients who need to undergo follow-up colonoscopy 6 months after initial EMR procedure will be enrolled at one tertiary-care referral institution

Inclusion Criteria: Post-EMR follow up at 6-12 months

Exclusion Criteria:

- Non-corrected coagulopathy

- Pregnancy

- Breast feeding

☐ Yes ☒ No   Will a Certificate of Confidentiality (COC) be obtained from NIH? If yes, Who is obtaining the COC: Mayo Clinic investigator, study sponsor, other: Explain why a COC is needed:

Methods: *Describe, in detail, the research activities that will be conducted under this protocol*:

Methods
This is a prospective, comparison trial. Patients who need to undergo follow-up colonoscopy 6 months after initial EMR procedure will be enrolled at one tertiary-care referral institution. Colonoscopies will be performed by four different endoscopists. All procedures will be performed by using a hgh-definition colonoscope (Olympus CFH190) with the near focus mode capability. For the 190 systems, the polyp was examined in standard focus and near focus modes, which provided in-focus images up to 2 mm from the optical lens, thus allowing true optical, in-focus zoom.

One type of colonoscope will be used for each patient. No additional endoscope will be utilized for the study. All patients will undergo general anesthesia for the procedure, and this is the standard of care for all patients undergoing EMR. Little additional time (less than 5 minutes) will be needed for the endoscopist to examine the area using the different endoscopic imaging methods and take biopsies if needed.

Prior to study start, all EMR endoscopists will review a test set of images (10) including those with and without residual neoplasia. They will then be tested on an independent set of 10 images. A score of 90% or higher is required prior to starting participation in the study.

Different endoscopic imaging methods will be utilized to identify and evaluate the previous EMR resection site. The scar site will be examined for the presence or absence of residual neoplasia. The prior EMR site will evaluated using 1) high definition white light, 2) white light with near focus, 3) NBI, and 4) NBI with near focus in real time. Endoscopic images are taken using each of the endoscopic imaging methods. A total of at least four photographs will be taken for each subject to be reviewed offline blinded to histopathology.
While using imaging techniques to examine the previous EMR site, the endoscopist will also be required to take a questionnaire during the procedure.
      One, does the endoscopist have suspicion of residual tumor at the site (yes/no).
      Two, does the endoscopist have high or low confidence of his/her assessment.

Dr. Wei-Chung Chen and other research assistants of Dr. Michael Wallace will be administering and recording the questionnaire during clinical procedure at Mayo Florida.

Research coordinators and assistants of Dr. Louis Wong Kee Song will be administering and recording the questionnaire during clinical procedure at Mayo Rochester.

Research coordinators and assistants of Dr. Francisco Ramirez will be administering and recording the questionnaire during clinical procedure at Mayo Arizona.

After careful inspection of the previous EMR site, at least four biopsies will be taken at the site to assess for any evidence of residual neoplasia. All resected specimens will undergo standard histopathology assessment by one pathologist who is blinded to the prior endoscopic imaging information.

The following information are collected prospectively from study participants
- Patient demographics

- Date of original procedure EMR

- Piecemeal/En Bloc procedure/Paris and Kudo classification of EMR scar

- Location of the previous EMR

- Size of the lesion

- Follow up date

- Follow up location

- White light (Positive or negative)

- White light near focus (Positive or negative)

- NBI diagnosis (Positive or negative)

- NBI with near focus (Positive or negative)

- Suspicion (high or low for each imaging technique)

- Prior clip placed and number of clip placed

- Histopathology diagnosis (positive or negative)

Other than the original endoscopist who performs the original surveillance colonoscopy, other gastroenterologists will evaluate the photographs that were taken using different endoscopic imaging techniques and assess for evidence of residual neoplasia. Same questionnaire will also be utilized. The gastroenterologists are blinded to the histopathologic diagnosis.

Resources: *Describe the available resources to conduct the research (personnel, time, facilities, mentor commitment, etc.)*:

Setting
Tertiary-care referral hospitals (MCF, MCA, and MCR)

Check all that apply. If none apply, leave blank:

☐ This is a multisite study involving Mayo Clinic and non-Mayo Clinic sites.
   When checked, describe the research procedures/activities being conducted **only** at Mayo Clinic:

☐ Mayo Clinic staff will be engaged in research activity at a non-Mayo Clinic site. *When checked, provide the location and a detailed description of the Mayo Clinic research staff involvement.*

☐ This study is to establish and/or maintain an ongoing database or registry for research purposes only.

☐ The research involves contact or interaction with subjects, for example, surveys, questionnaires, observation, blood draw.

☐ The study involves photographing, audiotaping or videotaping subjects (and guests).

Blood Collection

If this study involves prospective blood collection by finger, heel, ear stick or venipuncture, complete the following:

☐ **From healthy, non pregnant, adult subjects who weigh at least 110 pounds**. For a minimal risk application, the amount of blood drawn from these subjects may not exceed 550ml in an 8 week period and collection may not occur more frequently than 2 times per week.
   Volume per blood draw: _____ml
   Frequency of blood draw (e.g. single draw, time(s) per week, per year, etc.) _____

☐ **From other adults and children considering age, weight, and health of subject.** For a minimal risk application, the amount of blood drawn from these subjects may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period, and collection may not occur more frequently than 2 times per week.
   Volume per blood draw: _____ml
   Frequency of blood draw (e.g. single draw, time(s) per week, per year, etc.)_____

Review of Chart, Images, Specimens

Provide the date range for collection of data and/or specimens that will be included in your research dataset. *Example: 01/01/2000 to 12/31/2013* or all records through mm/dd/yyyy.

For a retrospective chart review, enter the date range:

<u>Check all that apply</u>:

☐ This study involves only data and/or specimens that exist at the time this application is submitted to the IRB (IRB submission date). No data or specimens will be collected beyond this date.

☒ This study involves only data and/or specimens that will be collected after submission to the IRB.

☐ The study involves data and/or specimens that exist at the time of submission to the IRB **and** data and/or specimens that will be collected after submission to the IRB, for example a study that includes collection of existing data and prospective collection of specimens.

☐ Data and/or specimens used in this study are collected under another IRB protocol. *When checked, provide the IRB number(s) from which the research material will be obtained. When appropriate, check the box below to attest that subjects have provided consent for future use of their data and/or specimens, as described in this protocol.*

    IRB Number/s - Data Only: _____

    IRB Number/s - Specimens Only: _____

    IRB Number/s - Data and Specimens: _____

Note: When subjects provided consent for use of their data and/or specimens, as described in this protocol.

☐ Other data sources will be utilized in this study, e.g. receiving data/specimens from an external party. When checked, provide all data sources:

Data Confidentiality, HIPAA Subject Identifiers

Review the list of subject identifiers below and, if applicable, check the box next to each subject identifier being recorded at the time you are collecting/abstracting data/specimens for use in this study.

Subject Identifiers: Individually identifiable information, including demographic data, that identifies the individual or for which there is reasonable basis to believe it can be used to identify the individual. NOTE: Identifiers apply to subjects enrolled in your study and to the subject's relatives, household members, employers, etc.

Internal refers to subject identifiers that will be included in the dataset maintained by the study team.
External refers to subject identifiers that will be shared with persons outside of the immediate study team, for example, sent to an external collaborator or shared with a national registry.

SUBJECT IDENTIFIERS **Check all that apply**	INTERNAL IDENTIFIER	EXTERNAL IDENTIFIER
Name	x	
Social Security number		
Medical record/patient registration number, lab accession, specimen or radiologic image number	x	
Study number, subject ID, or any other unique identifying number, characteristic or code that can be used to link the identity of the subject to the data	x	
Dates: All elements of dates [month, day, and year] directly related to an individual. Their birth date, date of death, date of diagnosis, etc. **Note:** Recording a year only is not a unique identifier.	x	
Medical device identifiers and serial numbers		
Biometric identifiers, including finger and voice prints, full face photographic images and any comparable images		
Web Universal Resource Locators (URLs), Internet Protocol (IP) address numbers, email address		
Street address, city, county, precinct, zip code, and their equivalent geocodes		
Phone or fax numbers		
Account, member, certificate or professional license numbers, health beneficiary numbers		
Vehicle identifiers and serial numbers, including license plate numbers		
If None of the above identifiers will be recorded or maintained in the dataset and/or sent outside of the study team, please check "None".	☐ None	☐ None

Statistical Information

Note: Power analyses and study endpoints are not needed for a pilot or feasibility studies.

☐ No statistical information. *If checked, please explain*:

Statistical Considerations

Power Statement:

Sample size is estimated based on the degree of precision. We estimate that 20% of cases will have residual neoplasia. Thus, sensitivity will be the key limiting variable. In order to achieve confidence intervals < 5%, assuming 90% sensitivity, 150 cases are needed. To account for possible drop out, lower quality images, or inability to get 4 high quality images in all cases, we will enroll 200 patients.

Data Analysis Plan:

Endpoints

Primary:

Sensitivity, specificity, accuracy for white light, white light with near focus, NBI, and NBI with near focus against histopathology as the standard reference.

Secondary: