

SUMMARY

Fecal occult blood is a term used to describe the presence of blood in the feces. Blood is present in the feces due to bleeding from the gastrointestinal tract. Small increases in blood content may not alter the appearance of the stool and such stools are said to contain 'Occult Blood', detection of which can be most useful in uncovering and localizing disease. Hemoglobin level of 5 mg/dl or more are diagnostically significant. Screening of occult blood is especially important because over one half of all cancers (excluding skin) are those of the gastrointestinal tract. Early diagnosis and treatment of patient with colonic cancer results in a relative good prognosis for survival.

HEMACHEX test is useful in the detection of bleeding caused by gastrointestinal disorder such as colitis, polyps, diverticulitis, colorectal cancer and hookworm infestation. Fecal occult blood tests are recommended for use as an aid to routine physical examinations. Routine hospital testing, Screening for gastrointestinal bleeding from any source including colorectal cancer.

PRINCIPLE

If blood is present in the stool sample, the hematin in the hemoglobin molecule catalyses the release of oxygen from the hydrogen peroxide, which in turn oxidizes the colourless phenolic components to coloured quinines.

During test, after the addition of the developer solution to the reactive surfaces of the result window, the reaction area turns blue if occult blood present in the sample. If the reaction area does not change colour then, it indicates that there is no occult blood present in the sample.

CONTENTS

HEMACHEX test Cards, Dropper bottle containing developer solution, Positive Control, Stool Applicator

STORAGE / STABILITY

Storage reagent at 15-30°C, in a cool place away from direct sunlight, fluorescent light, U.V rays and moisture. DO not refrigerate.

The reagents and test cards are stable till the expiry date mentioned on the label.

REAGENT PREPARATION

HEMACHEX test cards consisting of a filter paper impregnated with phenolic components (reactive surface), the developer solution and the positive control are ready to use.

SAMPLE MATERIAL: Stool

PREPARATION OF THE PATIENT BEFORE SAMPLE COLLECTION

As for all occult blood test certain medications such as aspirin, indomethacin, phenylbutazone, reserpine, corticosteroids and nonsteroidal anti-inflammatory drugs can induce gastrointestinal bleeding and cause false positive results. These medications should be temporarily discontinued with the consent of the physician for 7 days prior to testing and during the test period.

Vitamin C when taken in amounts greater than 250mg per day has been shown to induce false negative results. Rectal medications (suppositories) and iron containing medications may also interfere with these tests and should be discontinued two days before and during the test period with consent of the physician.

For atleast 2 days before and during the test period all raw meat and red meat should be avoided. Raw broccoli, cauliflower, radishes and turnips may cause false positive results, hence should be avoided.

SAMPLE COLLECTION

A clean dry detergent free glass or plastic container of suitable size is ideal for collection of the specimen. Urine should not be passed simultaneously into the collection container. Clean pieces of plastic are convenient for transferring stool from the collection container to the transport vessel.

The stool samples should be collected from different areas of the formed stool. (Samples from the outside of stool are most likely reflect condition of lower colon, while specimens taken from inside of the stool are more likely to reflect conditions of the upper gastrointestinal tract) and also provides a more representative sample to be tested.

The two test fields provided in hemachex facilitate detection and localizing the source of bleeding. Because bleeding may be intermittent, it is preferable to collect specimens from different bowel movements, preferably consecutive ones.

PROCEDURE

Pierce the nozzle of the developer solution with a rust free sharp pin or needle. Retrieve the required number of test cards to perform the desired number of tests. Label the cards with correct patient identity. Open the sample application windows labeled A and B respectively, to expose the reactive surfaces of the card. By using the sample applicator provided in the kit spread a very thin layer of stool on the reactive surfaces on the Window A, similarly on Window B from the different part of the stool. Wait until the smear has dried completely. Turn over the rest card. Open the result window and add one drop of developer to fields RA and RB (the reverse side of the sample smeared on the sample application windows) respectively. Observe the colour change exactly at two minutes. Even if one of the field's has blue colour, the test is positive for occult blood.

INTERPRETATION OF RESULTS

No blue colour indicates absence of occult blood in the stool. Trace blue colouration indicates presence of approximately 5mg/dl of occult blood in the stool. Strong blue colour indicates significantly more than 5mg/dl of occult bloods in the stool.

NOTES

The developer solution contains hydrogen peroxide, which may be irritating. Avoid contact with eyes, skin and clothing. In case of contact flush with large quantities of water. Do not expose the test cards and developer solution to direct sunlight, fluorescent light and U.V rays. Stool sample collected during menstrual bleeding, constipation induced bleeding, bleeding hemorrhoid or when rectal medication is used may cause positive results. Hands, collection container and test area should be kept free of blood as they may cause false positive results. Certain medications may induce gastrointestinal bleeding and cause false positive reactions hence should be avoided during and prior to the testing period. Diet containing exogenous peroxidases may induce false positive results. Dosage of Vitamin C more than 250mg per day will cause a false negative result if the test developed before the sample smear dries completely on the test card, the results obtained may not accurate.

REFERENCES

Knight et. al (1989) Occult blood screening for colorectal cancer, JAMA, Vol 261, No.4, 587 – 593. Rockey et. al. (1998) relative frequency of upper gastrointestinal and colonic lesions in patients with positive occult blood tests. N Engl J med 339; 153-159. Moris W.D. et. al. (1976) Reliability of chemical tests for fecal occult blood in hospitalised patients. Digestive diseases Vol 21, No 10, 845 – 852. Ostrow J.D. et. al. (1973) sensitivity and reproducibility of chemical tests for fecal occult blood with an emphasis on false positive reactions, digestive disease Vol 18, No 11, 932-939.