FECAL CALPROTECTIN AS A MARKER TRACKING TO 6 MONTHS AFTER SURGERY IN PATIENTS WITH COLORECTAL CANCER EVOLUTION

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Abstract

In the present study we tried to establish the steps to be followed in monitoring postoperative patient with colorectal cancer. Thus, we found that the main biochemical changes occur in the values of the samples inflammatory hemocult test, carcinogenic embryonic antigen and especially in the excretion of fecal calprotectin.Of course it remains colonoscopy examination of choice, but because it is a more expensive examination and a degree of discomfort importantly, we tried to find how that could be shunted cases where such an examination is necessary. We considered invasive investigation methods could also increase, addressing patients and their reluctance would fall to the presentation to the doctor for follow long periods of time.Dosage fecal excretion of calprotectin proved to be an important indication of the existence of colonic mucosal inflammation present in inflammatory bowel diseases such as colorectal neoplasms. Due to consistency between the increased values of faecal calprotectin and colonic mucosa lesions this test could eventually be included in a screening protocol for patients operated on for colorectal cancer.

Key words: fecal calprotectin, colorectal cancer, screening

INTRODUCTION

In this study, we aimed to evaluate changes in fecal excretion of calprotectin, hemocult test, inflammatory markers (ESR, fibrinogen, C-reactive protein) and carcinoembryonic antigen in patients with colorectal neoplasms operated, values measured at 6 months postoperatively.

Calprotectin was first isolated from granulocytes by Fagerhol in 1980 and was named L1 protein. (Fagerhol MK et al, 1980) Later, due to its ability intracellular calcium binding, named for calprotectin. (Fagerhol MK et al, 1980) Calprotectin is a non-glycosylated protein of clasaS100 (A8) (Satoru Y et al, 2003) which accounts for approximately 60% of the protein in the cytosol of leukocyte. (www.creeaza.com) is released into the intestinal lumen when leukocyte activation or due to their degradation. (Steinbakk M, et al.1990) The amount of faecal calprotectin reflect the amount excreted in fecal leukocytes and gravity and extent of intestinal inflammation (http://www.cdt-babes.ro/articole/boala_crohn.php) Many researchers have analyzed the levels of calprotectin in patients diagnosed with inflammatory bowel disease results demonstrated that fecal calprotectin level determination is an indicator very best of relapse

(Rosental AG, 2003) and constitutes an adjuvant clinicians in prescribing appropriate treatment. (https://www.nice.org.uk/guidance/dg11)

MATERIAL AND METHOD

The theme of the work was studied in 2010-2014. We included in the study a number of 198 patients investigated and operate the Hospital CF Oradea and Oradea County Emergency Hospital.
All patients were diagnosed with colorectal cancer, colonoscopy and histopathology confirmed and underwent surgery for this condition. Each patient was examined clinically and was investigated with a battery of laboratory tests and colonoscopic 6 months postoperatively. Analyses were performed in all patients: hemocult test, carcinogenic embryonic antigen excretion of fecal calprotectin (semi-quantitative test), ESR, fibrinogen, C-reactiveprotein.

Each patient has compiled a record of each study standardized patients signed informed consent to the study.

The tests used to detect faecal calprotectin in rapid tests were strip-test type, semi-quantitative immuno-chromatographic Cal-Detect® SOFAR. These tests are easy to use, affordable, and can be used in the family medicine cabinet. Interpretation of the results of this test is done in a few minutes by the appearance of 1, 2 or 3 lanes test mark. The first band means a concentration below 15 mg / g of fecal calprotectin unrepresentative for intestinal inflammation; appearance of two bands signify a concentration of 15-60 mg / g of fecal calprotectin is associated acute inflammation of the intestinal mucosa and the appearance of three bands indicate a high degree of intestinal mucosal inflammation with values above 60 mg / g of fecal calprotectin. (leaflet)

Carcinogenic embryonic antigen values were determined ambulatory other laboratories by immunochemical methods with detection by electrochemilumiscenta.

RESULTS AND DISSCUSIONS

Carcinogenic embryonic antigen had values above the normal in 44 of the patients, ie 22.22%. (Table 1, figure 1)

Table 1

Distribution of cases according to the result carcinogenic embryonic antigen

	Nr.	%
Negative	**154**	**77,78**
Pozitive	**44**	**22,22**

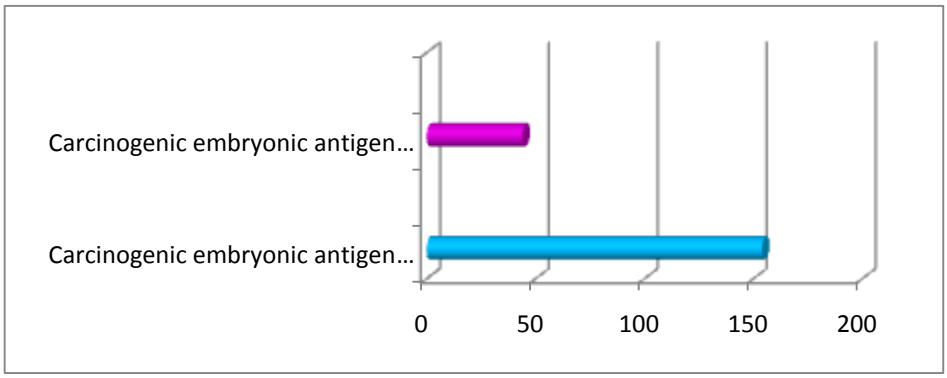

Figure 1. Distribution of cases according to the result carcinogenic embryonic antigen

Average value carcinogenic embryonic antigen was 5.09 ng / ml.

The positive outcome of the test was recorded at 4.04% hemocult patients representing 8 patients. (table 2, figure 2)

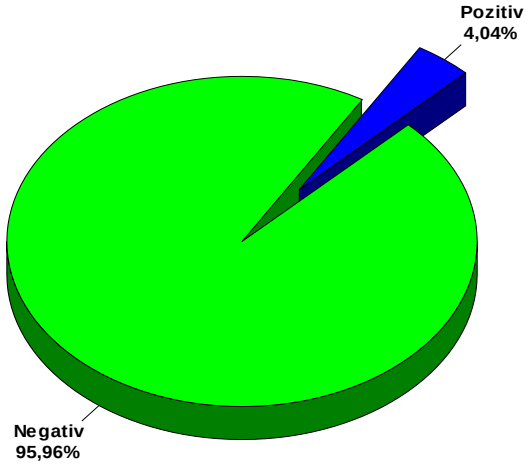

Figure 2. Distribution of cases according to test results hemocult

Table 2

Distribution of cases according to test results hemocult

	Nr.	%
Negative	**190**	**95,96**
Pozitive	**8**	**4,04**

Fecal calprotectin values were positive in 27.78% of patients, and values> 60 were recorded in 2.53% of cases. (table 3, figure 3)

Table 3

Distribution of cases according fecal calprotectin values

	Nr.	%
Negative	**165**	**83,33**
Pozitive +	**24**	**12,12**
High pozitiv ++	**9**	**4,55**

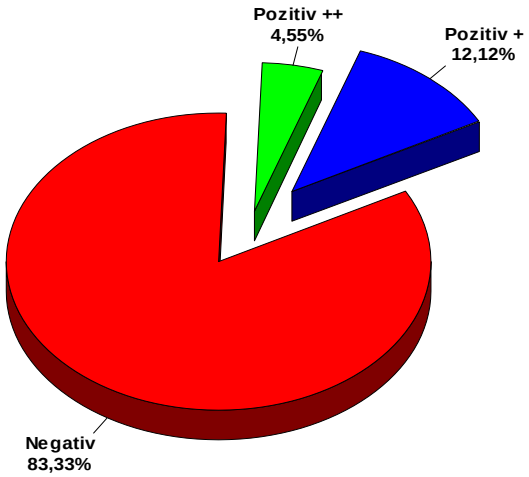

Figure 3. Distribution of cases according fecal calprotectin values

C-reactive protein was positive in 21 patients representing 10.61% of all patients participating in the study. (table 4, figure 4)

Table 4

Distribution of cases by PCR values

	Nr.	%
Negativ	**177**	**89,39**
Pozitiv	**21**	**10,61**

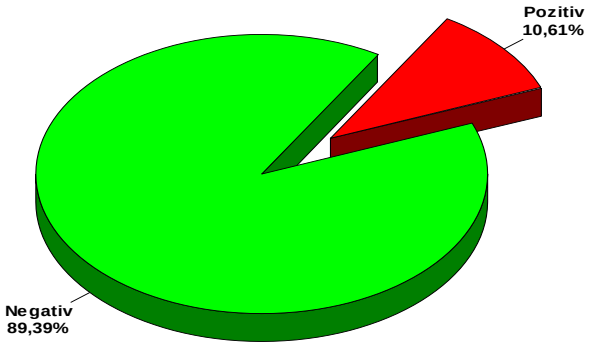

Figure 4. Distribution of cases by PCR values

High levels of ESR, at 1h and 2 h, were recorded in 91 of the patients being 45.96% and 33.33%, representing 66 patients. (table 5, figure 5)

Table 5

Distribution of cases according to ESR values at 1h and 2h

	Normal values	High values
ESR values at 1h	**107**	**91**
ESR values at 2 h	**132**	**66**

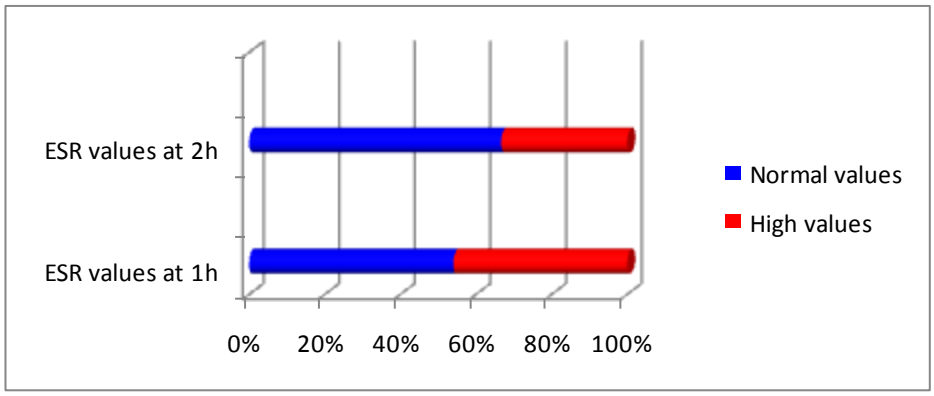

Figure 5. Distribution of cases according to ESR values at 1h and 2h

Average values recorded were 15.65 mm / h for 1 hour ESR or 26.26 mm / h for 2 h ESR.

With elevated fibrinogen was recorded in 22 patients representing 11.11%, the average value obtained from 379.0 mg / dl. (table 6, figure 6)

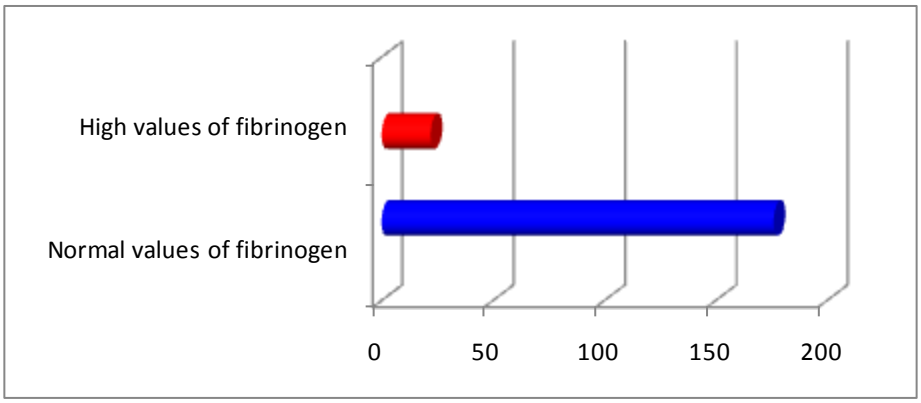

Figure 6. Distribution of cases according to the values of fibrinogen

Table 6

Distribution of cases according to the values of fibrinogen

	Nr.	%
Normal values	**176**	**89,39**
High values	**22**	**10,61**

Colonoscopy revealed tumor recurrence performed in 2 patients, representing 1.01% and polyps in 37 patients representing 18.69%. I also found the presence of an appropriate phase Crohn's disease activity and 11 patients with ulcerative colitis. Also during colonoscopy were identified 12 patients with nonspecific colitis. (table 7, figure 7)

Table 7

Distribution of cases according to the results of colonoscopy

	Nr.	%
Tumor relapse	**2**	**1,01**
Colon polyps	**37**	**18,69**
Crohn's disease	**1**	**0,5**
Ulcerative colitis	**11**	**5,55**
Nonspecific colitis	**12**	**6,06**

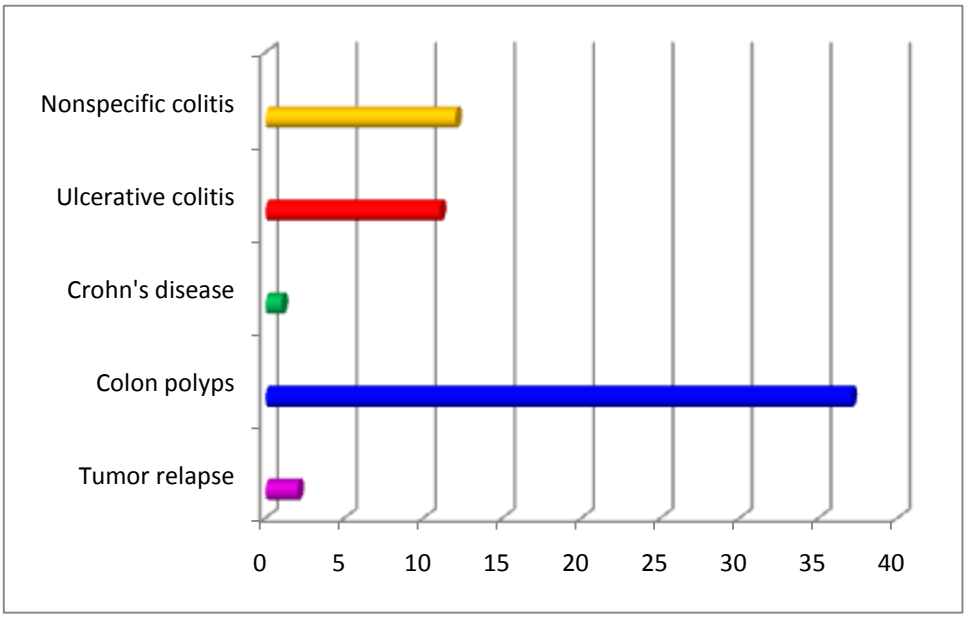

Figure 7. Distribution of cases according to the results of colonoscopy

We studied 198 patients operated ago 6 months for colorectal cancer, which were investigated in order splitting tumor recurrence.

As a follow-up postoperative tumor marker was dosed carcinogenic embryonic antigen, whose values were elevated in 22.22% of cases.

Also, trying to find the most reliable, convenient, noninvasive and inexpensive screening test postoperatively could announce the existence of

a possible recurrence or a new colon cancer we considered testing fecal calprotectin hemocult and dosage which, when coupled and with inflammatory and tumor marker tests may suggest the existence of a recurrence of the disease.

In this context we found a hemocult test positivity in 4.04% of patients operated on 6 months ago for colorectal cancer.

In contrast, fecal calprotectin was elevated in 27.78% of patients, 2.53% of all patients with fecal calprotectin values greater than 60 mg / g.

As examination with the highest fidelity in diagnosis, but invasive and a higher cost control we performed colonoscopy in all patients included in the study.

In the colonoscopy results we have found the presence of two tumor relapse patients, respectively 1.03% of the total number of patients and the presence of the 37 cases of colon polyps, that 18.69% of the patients. I also found the presence of an appropriate phase Crohn's disease activity and 11 patients with ulcerative colitis. Also during colonoscopy were identified 12 patients with nonspecific colitis.

CONCLUSIONS

In the present study we tried to establish the steps to be followed in monitoring postoperative patient with colorectal cancer. Thus, we found that the main biochemical changes occur in the values of the samples inflammatory hemocult test, carcinogenic embryonic antigen and especially in the excretion of fecal calprotectin.

Of course it remains colonoscopy examination of choice, but because it is a more expensive examination and a degree of discomfort importantly, we tried to find how that could be shunted cases where such an examination is necessary. We considered invasive investigation methods could also increase, addressing patients and their reluctance would fall to the presentation to the doctor for follow long periods of time.

Dosage fecal excretion of calprotectin proved to be an important indication of the existence of colonic mucosal inflammation present in inflammatory bowel diseases such as colorectal neoplasms.

Patients with clinically significant endoscopic results showed fecal calprotectin values higher than patients with negative endoscopic results.

Faecal calprotectin measured before colonoscopy investigation was a predictor of the presence of pathologies described later by performing colonoscopy colorectal level.

In the last decade the number of endoscopies performed significantly increased worldwide in many cases without justification, without causing additional costs resulting health of the population. Given limited resources

and growing health costs, triage patients to perform endoscopy is an acute need.

Due to consistency between the increased values of faecal calprotectin and colonic mucosa lesions this test could eventually be included in a screening protocol for patients operated on for colorectal cancer.

We believe that this study brings a new light faecal calprotectin test it until now no longer used as a marker for colorectal neoplasms of follow-up.

Of course, for a complete screening of these patients will be coupled with the test hemocult investigation and confirmed by colonoscopy. But this test can sift easier target population for colonoscopy.

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