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Colorectal Cancer: A Rapidly Rising Malignant Disease

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A B S T R A C T

Colorectal cancer is defined as partial suppression of apoptosis. This can provide survival benefits to abscesses but also result in an ineffective method of chemotherapy. New developments in research provide a new approach to targeted treatment for colorectal cancer. A new approach to targeted therapies is leading a new approach to colorectal cancer treatment and providing promising results. Continuous prevention or avoidance of apoptosis was detected during the conversion of colorectal epithelium into carcinoma, suggesting that apoptosis dysfunction plays an important role in colorectal tumourigenesis. In this review, the etiology, pathogenesis and current treatment are discussed. Despite performing screening, and the progress made in treating colon cancer patients, morbidity and mortality is still large and growing. It is therefore important to educate the public on the prevention of colon cancer, to combat bad eating habits and to promote healthy lifestyles.

Keywords: Cancer, colorectal cancer, tumourigenesis, morbidity

1. Introduction

Malignant neoplasm of the colon (colon, rectal-osseous bend, rectum and anus) (C18-20) is the second leading cause of cancer in Poland for both sexes (men - 12.4%; women - 10.1%), and the number of diseases increases little by little.

The most common colorectal cancer is found in: rectum (30 - 50%), sigmoid colon (15 - 20%), ascending colon (14%), flexible colon (9%) and descending colon (6%). . Most deaths due to severe colon problems occur after age 60 (over 80%). Most deaths in men are recorded in the eighteenth year of life while in women the ninth year of life (Rafał Zyśk, Piotr Wysocki, Lucjan Wyrwicz, 2014).

Due to population aging and population growth after the age of 65, it is predicted that by 2025, the incidence of colorectal malignancy will be 24,600 of which 15,500 for men and 9,100 for women (Anna Kubiak, Witold Kycler, Maciej Trojanowski, 2014).

2. Etiology

Risk factors can be divided into four groups:

2.1 Epidemiological

- persons over 40 years of age
- white
- overweight
- with low physical activity
- smoking tobacco
- excessively consuming alcohol
- Developed countries: in Australia and New Zealand (standardised incidence rate 38,2/100 thousand). Per year) in the European Union (31.3) and North America (26.1) and the smallest in Africa (6.3). (Krzakowski M., Potemski P., Warzocha K, Wysocki P, 2015)

2.2 Genetic (intestinal): Occurrence of colorectal cancer among relatives can be

- Degree (in the absence of a genetically determinated syndrome),

- genetically determined disease syndromes leading to the development of cancer [an family polyposis syndrome (FAP, familial adenomatous polyposis),
- hereditary colon cancer Not associated with polyposis (HNPCC, hereditary nonpoly colon cancer, Lyncha syndrome)

2.3 Dietetic:

- diet with a low content of fiber,
- rich in animal fats

2.4 Mixed

- The history of pelvic radiotherapy, cholecystectomy
- Inflammatory diseases of the colon like ulcerative colitis, Crohn's disease, extensive inflammatory lesions.

3. Clinical Presentation

Symptoms of colon cancer depend on its location.

3.1 Cancer of the right half of the colon*:*

- dull pain in the area of the lower abdomen on the right side, in the area of the navel or lower abdomen,
- a dark stool
- a palpating tumor on this side of the abdomen.

3.2 Cancer of left half of the colon

- Pain of the nature of intestinal colic
- constipation
- fresh blood in the stool
- obstruction.

3.3 Cancer of Rectum

- Escalated feelings of pressure on stool
- incomplete bowel movements,
- narrow stools.

4. Pathophysiology

4.1 Initiation

Most colorectal cancer begins as a growth of the inner lining of the colon or rectum. These plants are called polyps. Some types of polyps can turn into cancer over time (usually for many years), but not all polyps become cancerous. The probability that a polyp turns into cancer depends on the type of polyp it is.

There are different types of polyps.

Adenomatous polyps (adenomas): These polyps sometimes turn into cancer. Because of this, adenomas are called pre-cancerous conditions.

The 3 types of adenomas are tubular, villous, and tubulovillous.

Hyperplastic polyps and inflammatory polyps: These polyps are very common, but usually do not have pre-cancerous cancer. Some people with large polyps (over 1cm) may need colorectal cancer screening with repeated colonoscopy.

Sessile serrated polyps (SSP) and traditional serrated adenomas (TSA): These polyps are often treated as adenoma because they have a higher risk of colorectal cancer (Libutti SK, Saltz LB, Willett CG, and Levine RA, 2019).

Other factors that can make a polyp more likely to develop cancer or increase a person's risk of developing colorectal cancer include:

● If a polyp more than 1 cm is found

● If more than 3 polyps are found

If dysplasia appears in the polyp after removal.

Dysplasia is another dangerous condition. It means that there is a place in the polyp or colonic membrane or rectum where cells look abnormal, but do not cause cancer (Libutti SK, Willett CG, Saltz LB, and Levine RA, 2019).

4.2 Transmission

If the cancer develops in the polyp, it can grow into a wall of the colon or rectum over time. The wall of the colon and rectum are made up of many layers.

Skin cancer starts in the inner lining (mucous membranes) and can grow out of some or all of the layers (see image below). If the cancer cells are on the wall, they can grow into blood vessels or lymph nodes (small ducts that carry waste and fluids).

From there, they can travel to nearby lymph nodes or distant parts of the body. The stage (spread rate) of colorectal cancer depends on how deep the wall grows and whether it spreads beyond the colon or rectum (Luo C, Cen S, Ding G, Wu W, 2019).

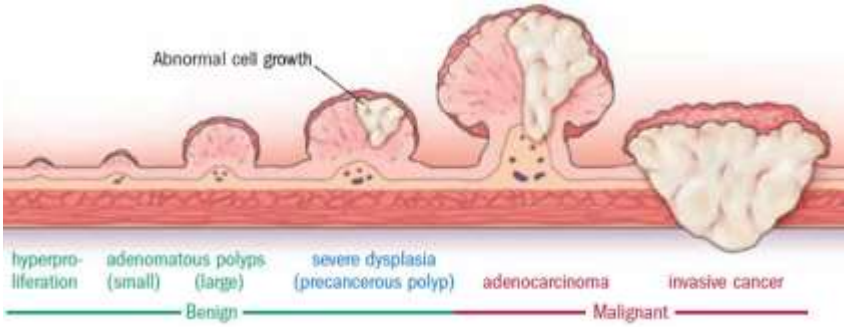

Figure 1: Polyp development phases (FDA Grants, 2019)

5. Diagnosis

Colon cancer is almost always adenocarcinoma formed by tubular structures. Signet cell carcinoma, like an abnormal small cell, is characterized by severe prognosis.

In laboratory studies, the most common is microcytological anemia, high CEA levels (10 - 15% of patients with normal values) and direct stool blood tests. The study, which should be part of the initial diagnosis of tumors of the lower abdomen, is a proctological study (each rectum) (Rafał Zyśk, Piotr Wysocki, Lucjan Wyrwicz, 2014).

The basis for the diagnosis is endoscopic studies of the lower intestinal tract, which allows the detection and collection of tumor fragments and amputation of all intestines. An important factor in the diagnosis is the performance of histopathological tests, determining progress according to TNM phases. It is now an important factor in determining the genetic makeup of RAS by molecular mechanisms (excluding mutation activation in Exods 2. - 4. KRAS and NRAS) and immunohistochemical confirmation of the presence of EGFR proteins (positive response ≥ 1% cells thought).

These studies are necessary to obtain qualifications for patients with metastatic colorectal cancer in anti-EGFR treatment. The main predictors of colon cancer are clinical parameters such as TNM or Duke Planning, penetration depth, intravenous and lymphatic infiltration, lymph nodes seizures and Degree of differentiation (Maciej S. Wideł , Maria Wideł, 2006; Bamias A., Basdanis G., Xanthakis I., Pavlidis N., Fountzilas G, 2005; Compton C., Fenoglio-Preiser C.M., Pettigrew N., Fielding L.P, 2000; Scheele J., Stangl R., Altendorf-Hofmann A, 1990).

Colorectal cancer occurs in polyps, and this process lasts for twelve years (Warszawa 2008).

The tests were shown to be very effective where they used a magical blood test and endoscopic examination. This study reduced morbidity due to early polypectomy and mortality.

6. Treatment

The treatment of colon cancer depends on the development, location, diagnosis of histopathological, from the presence of the above-mentioned changes and the presence of EGFR proteins.

At the stage of stage III colon cancer surgery is a very important surgical procedure and additional chemotherapy treatment (3 degree) based on fluorouracil, (LVFU2, FOLFOX-4, XELOX, capecitabine).In the case of rectal cancer, treatment is aimed at reducing the risk of recurrence and retention of sphinrters. The most common treatment for arectal cancer is complete surgery of mezorecum (complete mesorectal discharge - TME) or local notch (by retrieval in the posterior or endoscopic; endoscopic microdissection - TEM) (Łacko A, 2011).

Radiation therapy (RTH) was demonstrated in three randomized trials. This is indicated in patients with advanced rectal (non-terminal) cancer without long-term metastasis (CRTH) which allows for the reduction of tumor weight which will facilitate its reversal.

Conventional radiotherapy (50Gy) is associated with chemotherapy (FU and LV or capecitabine). Systemic therapy is also used in selected cases after surgery.

The chance of treatment or long-term survival in selected patients in the stage of the spread of tumor cancer provides a residual metastazectomy preceded by chemotherapy. The ability of systemic therapy to increase molecular-directed drugs.

Among the new generation of drugs currently used in patients with advanced colorectal cancer are monoclonal antibodies: bevacizumab [vascular huvec growth factor antagonist (VEGF), cetuximab and vascular panitumumab [epidermal growth factor receptor (EGFR).] and aflibercept (also known as 'VEGF Trap') and regorafenib (a multiinase inhibitor) (Krzakowski M., Warzocha K, 2013).

The choice of palliative treatment strategy should be based on the possibilities of effective treatment, and above all in the patient's condition and the toxic profile of the drugs used.

7. Drawbacks of therapy

The drawback with this treatment is that the drug becomes resistant and the treatment cannot cure the disease. In addition poisoning is a problem. Multi-drug resistance (MDR) is a major barrier to effective cancer treatment. Drug resistance to multiple chemotherapeutic agents is considered to be a major cause of chemotherapy failure in colorectal cancer. Drug resistance can be classified into pharmacokinetic resistance (e.g. low drug overload in the tumor area, tumor dysfunction, high intratumoural pressure), physical resistance (tumor storage areas; pH effect on the tumor site), tumor cell kinetic resistance (low plant growth component), and cellular resistance (Vhora I, Patil S, Bhatt P, Gandhi R, Baradia D, Misra A, 2014).

8. Approaches for colon targeting

8.1 Colon is a site where both local delivery and treatment system can take place. Local delivery allows for topical treatment of inflammatory bowel disease, colon cancer. Treatment can be made more effective if treatment regimens are not directed directly at the colon, thus minimizing systemic side effects. For a variety of intestinal diseases targeted drug delivery to the colon is highly desirable. In order to successfully reach the colon in a consistent manner, delivery systems must pass through obstructions in the stomach and intestines (Bhatt P, Khatri N, Kumar M, Baradia D, Misra A, 2015).

8.2 Delivery systems are based on polysaccharide. The use of natural polysaccharides attracts much attention to colon-directed drugs as these polymers of monosaccharides are widely available, widely available and cheap and available on the verity of a multi-structural structure. Their conversion can be easily done biochemically with chemically stable and non-toxic hydrophilic chemicals (Patil S, Bhatt P, Lalani R, Amrutiya J, Vhora I, Kolte A, et al, 2016). Polysaccharides are produced in plant, bacterial and animal origin. Polysaccharides are resistant to the digestive action of digestive enzymes.

9. Conclusion

The colorectal cancer and most cancers, in general is difficult to deal with because this cancer disorder is complicated however also because of its ability to immortalize and maintain to divide endlessly. There are various styles of remedy to be had in line with the seriousness of the cancer tumors and diploma of complication. However, the remedy effectiveness at the colorectal cancer is relying upon the affected person’s stage of recurrence. The continuous improvement in the remedy leads CRC evaluation. However, a change inside the mentality is begging to succeed, with increasingly more professionals embracing the idea that man or woman biomarkers and diagnosis treatment. Additionally, most cancers are growing imperatively and to overcome the constraints of treating the colorectal most cancers need to do exclusive combinatorial method.

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