
Our Experience in Self-Management Support following Colorectal Cancer Treatment

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“Clinical services, systems, processes and environments must all convey to patients the message: ‘You have a part to play. We are partners. We respect your role and will support you to be part of the team.’” [1]

Abstract

The aim of this chapter is to present information and data from our studies on the analysis and assessment of the necessity of self-management support and promoting the awareness of Bulgarian patients with colorectal cancer. This survey covered a total of 315 patients with stoma, making use from consultations at specialized offices in 8 Bulgarian towns. An anonymous questionnaire was conducted, covering a total of 31 questions. The chapter presents results from nonparametric analysis for the more important questions searching for statistically significant relationship with other comparable questions listed in the questionnaire. The necessity of self-management support is assessed on the basis of the received answers. The activity of the established consultation room’s network is described, and information is provided concerning the realized self-management support through enhancing the patients’ and health-care specialists’ awareness on recent scientific achievements referring to dietary preventive and risk factors. Additional studies are needed in order to involve effectively each patient’s potential in the struggle for successful disease outcome and to select the best and most effective approaches for self-management support in compliance with the individual demands of patients with colorectal cancer.

Keywords: colorectal cancer, self-management support, consultation rooms, patients’ awareness, dietary factors

1. Introduction

The current diverse picture of colorectal cancer epidemiology outlines prevailing data showing systematic recent increase of the global colorectal cancer incidence rate with certain

emphasis reflecting already some reduction of the prevalence characteristic only for some well-developed countries [2, 3]. In this aspect the evidence revealing synchronous growth of age and concomitant chronic disease provokes great interest. For them the predictions of the Institute for the Future, Health and Health Care are that the population aged 65+ will increase from 35 million in 2000 to 53 million in 2020 [4]. The outlined data substantiate the necessity to enhance the variety of approaches to both the prevention and treatment of colorectal cancer and particularly on the involvement of self-management. The complexity of care, intrinsic for colorectal cancer, with its personal, clinical, and social aspects outlines the necessity of self-management support. To respond to this necessity, we focused on involvement of self-management in the struggle against colorectal cancer and provision of the necessary support to achieve an effective disease outcome.

The aim of this paper was to provide information and data from our surveys on the analysis and assessment of the necessity of self-management support and improving the awareness of Bulgarian patients with colorectal cancer.

The survey covered a total of 350 patients with stoma consulted at specialized offices in eight Bulgarian towns: Sofia, Plovdiv, Varna, Burgas, Ruse, Pleven, Haskovo, and Stara Zagora. An anonymous questionnaire study was conducted with a total of 315 respondents delivering correctly completed questionnaire, and 35 questionnaires were discarded because of incorrectly supplied information. Questionnaire studies are among the most informative approaches particularly to problems depending on numerous factors such as colorectal cancer.

The questionnaire contained 31 questions, some of them with sub-questions. The questions were distributed in three main directions: sociodemographic characteristics, treatment quality and patients' satisfaction, and institutions' arrangements, public attitudes, patient's own activity, and supporting environment. The results were processed with descriptive statistical approach presented in one of our previous studies [5]. In this paper we present results from nonparametric analysis of some of the more important questions, searching for statistically significant relationship with other compatible questionnaire questions. Those achieved results were listed in relevant tables.

2. Analysis and assessment of the necessity of self-management support

The role and importance of self-management among the current diversity of measures and approaches for effective CRC treatment is more and more often emphasized. Many studies have shown that patients with colorectal cancer have to be educated to self-manage their condition and improve the quality of their physical, mental, and social life after cancer [5–7].

Self-management is identified as an approach with many benefits in the aspect of patient and economic outcomes and is set as a key element in the current health-care reforms. This approach is often defined as activities performed by the individuals and care providers for themselves, their children, their families, and other individuals in order to be in good

shape and maintain good physical and mental health, to respond to social and psychological demands, to prevent disease or accidents, to take care of minor health issues and chronic health states and to maintain health and well-being. In view of patients with colorectal cancer, self-management is an important problem because of the introduction of complex therapeutic regimes often including numerous combinations of chemotherapeutic drugs, and our previous evidence has shown poor patients' awareness concerning the role and effect of administered therapeutic and preventive approaches [5, 8].

Having in mind that during the last years there is greater interest to the use of chemotherapeutics administered orally and the patients' potential to implement chemotherapy at home, there will be a necessity to further activating of self-management. Those perspectives have certain claims to self-management as they require greater responsibility of the patients and their families in the administration of chemotherapy and associated risks. The complexity of the regimes also supposes that the patients will experience potentially toxic side effects requiring quick and effective self-control in order to prevent the unfavorable effects on the treatment and life quality.

Some of our previous studies have shown the necessity to trigger the activities associated with self-management of Bulgarian patients with colorectal cancer, because inadequate awareness about the disease, the risk, and preventive factors as well as the results revealed low level of trust in the administered therapeutic and health care [5, 8]. The realization of those activities requires numerous additional studies.

Patients' mental state, their living environment, and their activity in the treatment process are the most important conditions for successful course and maximal increase of the postoperative period and for good life quality. In this respect we selected three of the questions that to the greatest extent could provide an adequate response concerning the need of patient's active involvement in the processes of treatment and prevention of the concomitant aggravations: "Are you concerned about functions and abilities?" "Is the word 'cancer' a taboo for you and your family?" "Do the people with whom you have shared your diagnosis support you?" The replies to those questions were first assessed by descriptive statistics in percent, showing the trends, without statistical significance [5], providing an assessment of the momentary opinion of the respondents. This assessment, of course, is very important, but it is equally important to reveal what has affected those opinions, in order to undertake respective corrective activities.

The tools of the nonparametric statistical analysis (Fisher's exact test) were used to investigate the effect of most questions, compatible with each of the above-listed questions. The results obtained for each of the three questions are presented in tables covering only the questions with statistically significant effect on the formation of the responses to those three questions.

Table 1 presents the relationships with the question "Are you concerned about your functions and abilities?"

Analyzing the data in the table, the effect of patient's satisfaction with medical care as a significant factor is clearly highlighted ($p < 0.005$). The assessment of the professionalism of

Independent variable	p <
How would you evaluate as a whole your satisfaction with the medical services you experienced by now?	0.005
Doctors' professionalism/competence in diagnostics and treatment	0.02
Doctors' attitude to the patients	0.05
Observing the confidentiality, discreetness, and keeping the disease secret	0.003
Information about the disease course and treatment results	0.003
Provision of psychological consultations	0.02
What do you think about the current scheme of prescribing the necessary drugs?	0.0001
Do you meet difficulties in finding the necessary medical specialist?	0.0001
To what extent are you informed about the character of your disease, and do you think you have chances to overcome the disease?	0.001
Do you know the effect of the prescribed treatment and what could be expected from it?	0.0001
Do you think that the state policy is sufficiently beneficial for cancer patients?	0.0001
Do you think that cancer patients should work in alleviated working conditions?	0.02
How do you envisage the future?	0.001

Table 1. Are you concerned about your functions and abilities? (Dependent variable).

the medical doctors engaged in the treatment process is also a factor for overcoming the patients' concern ($p < 0.02$) as their trust in the positive health outcome is to a great extent based on the doctor's knowledge and skills. The good attitude together with understanding of the patient's state contributes to overcome the concern ($p < 0.05$) and increases the extent of trust in the treatment process and associated health care. Observing confidentiality and discreetness and keeping the disease secrets by the medical specialists are also important factors ($p < 0.003$) to cope with patients' concern. In fact this result could be regarded as patient's confidence in the positive outcome of the disease in the future when the present disease will possibly not be commented. A very important requirement for self-management is the patients' awareness of the disease course and treatment results ($p < 0.003$). The clarification of the disease course and the role of implemented treatment approaches causes marked decrease of patients' concern. The poorly informed patients will have, respectively, the greatest extent of concern. The difficulties in finding the necessary medical specialist affect significantly ($p < 0.0001$) the patients' concern about their functions and abilities. In this aspect it is necessary to clarify the possible ways to realize specific medical consultations complying with the cultural competence of the individual patient that is an accent on self-management support.

The closer and better psychological consultations are an important factor for overcoming the patients' anxiety and raising their trust in the further disease development and outcome ($p < 0.001$). The knowledge on the effect of the administered treatment and the expected results helps significantly ($p < 0.001$) to relieve patients' anxiety.

One of the main components of the psychological status of the colon cancer victim is confidentiality, focusing on one side on the consciousness about the vicious character of the disease and, on the other side, giving hope, though small, for a positive outcome.

Table 2 presents the relationships between patients' answers referring to their requirement for confidentiality ("Is the word 'cancer' taboo for you and your family?"). This table also clearly outlines the significant relationships between the answer to the question and the patients' assessment of doctor's competence and professionalism ($p < 0.02$), substantiating their trust and possibility to overcome the "disease taboo." From emotional point of view, the personal attitude of the doctor to the patient as to an ill person but also as to a personality is of particular importance ($p < 0.05$). The patient's demand to accomplish the doctors' professionalism with sympathy and personal approach to the victim is clearly manifested. This table, like the previous one, shows the necessity of psychological consultations which is a focus for self-management support for the studied patients.

In many cases of grave diseases, the patients do not want the people around them to be informed about their status, a standpoint particularly characteristic for cancer patients. This discreetness means that they do not want to be considered doomed, as their hope for getting well is stronger than the feeling of hopelessness.

The defeatist thinking is characteristic for most ill people, but it is most clearly expressed in cancer patients. The causes are as follows: the disease is incurable in an advanced stage, and even in an initial stage, there is no guarantee that the remission will not be followed by disease recurrence. That is why the doomed thinking and the constant stay at hospitals, resection of some parts of the body, lead to disturbed normal life rhythm and make patients dependent on drugs and time without a clear view whether they could plan—even for a short period of time—their life activities. All that leads to a second-rate life when the patients look mainly for information that makes things more optimistic for them. That is why, besides their own awareness, they need the information and discussion with the monitoring physician that should be provided by the self-management support.

Independent variable	p <
How did you choose the respective hospital establishment?	0.001
How would you evaluate as a whole your satisfaction with the medical services you experienced by now?	0.005
Provision of psychological consultations	0.02
What do you think about the current scheme of prescribing the necessary drugs?	0.0001
To what extent are you informed about the character of your disease and do you think you have chances to overcome the disease?	0.001
What do you think about your obligation to visit the hospital once per month for treatment?	0.002

Table 2. Is the word "cancer" a taboo for you and your family? (Dependent variable).

Independent variable	p <
Doctors' professionalism/competence in diagnostics and treatment	0.02
How would you evaluate as a whole your satisfaction with the medical services you experienced by now?	0.005
If you do not succeed to visit the doctor for treatment every month, what are the reasons for that?	0.02
Please, share with us whether you have problems during the visit to the outpatients' and what they are	0.0001
Provision of psychological consultations	0.02
Doctors' attitude to the patients	0.05

Table 3. Are you supported by the people with whom you have shared about your diagnosis? (dependent variable).

The data from the analysis of the answers to the question whether patients get support are presented in **Table 3**.

Social support is very important in the case of chronic diseases—it is a tool to collect information associated with the disease and sufferings, to reduce uncertainty—with chronic diseases there is always uncertainty about who will administer the treatment and how and what the patient's future will be, to establish a sense of certainty. Social support is effective when the chronically ill individual assesses it as adequate and is satisfied with it.

The psychological ban to use the word "cancer" is usually imposed by the victim or the people he/she lives with. The most frequent case is that his close relatives do not want to suggest him/her that he/she is ill and that the probability for a lethal exit is quite high. At the same time, the patient himself does not want to feel inferior, and in this aspect, he/she rejects talking about his disease, accepting his/her state as natural.

The patient prefers to talk about this topic only with people with the same diagnosis. They want to hear how other people who have been in the same situation have overcome the situation successfully. Only a person who has had cancer can understand the experience carried by the diagnosis, illness, and treatment. The strongest support is usually provided by their closest relatives, but in this case, there are many embarrassing facts depending on the victim's state that could impede his sincerity to his relatives.

3. Self-management support through establishing consultation rooms

Considering the difficulties experienced by each patient with colorectal cancer, we primarily started organizing consultations on the use of anus praeter pouches after surgical intervention. During those consultations it was established that the patients needed not only practical training but also support in various aspects: information about the disease itself, about the treatment course and disease development, the effect of administered drugs and therapeutic approaches, the importance of self-management, and role of psychological control.

Our consultation activities started with the first office in Sofia, followed in the subsequent years by similar consultation rooms in the towns: Plovdiv, Varna, Burgas, Pleven, Ruse, Stara Zagora, and Haskovo. The consultations are held by a doctor, a pharmacist, or a nurse—specially trained to work with patients with stoma. The Sofia office has employed the largest staff of consulting specialists followed by Varna and Plovdiv offices employing two different specialists. The offices at the other towns have only one consultant. The total number of patients who have visited the consultation rooms exceeds 5000, unevenly distributed in the years with a marked trend to increase during the recent years. Thus, at this stage the number of patients who have visited the consultation offices exceeds 1500 per year. The expectations envisage significant increase in compliance with the current data from epidemiological studies on colorectal cancer incidence rate. The preoperative consultations cover informing the patient about the necessity of specific tests aiming at precise diagnosis, eventually surgical intervention, revealing the particular options to delay the disease development process or the disease outcome. The patient is introduced to the possibilities of the postoperative therapeutic approaches focusing on handling the stoma bag. The matter is visualized by specially prepared brochures, photos, films, stoma model, and products for servicing the stoma, though without detailed training. The postoperative consultations mainly refer to handling the stoma through the use of various products, cosmetics, and accessories facilitating the patient's work. The patients participate in training courses, and in the majority of cases, their relatives are also trained because after the surgery, most of the patients cannot perceive correctly the recommendations due to the stress they are experiencing. This state is about new products and accessories. The patients are also advised about the procedures to reimburse the products. The role of the consultant who must help the patient in the postoperative recovery period is particularly important. That type of patients, especially the younger ones, is to be resocialized as quickly as possible, to go back to work, to have the same engagements as before the intervention. They must be sure that there is no difference between them and the other people and to have normal lifestyle. This is particularly valid for their sexual life due to the embarrassing presence of the stoma. The so-called "emotional self-care" incorporates approaches associated with clarification and enrichment of the information about the therapeutic interventions in order to comprehend their effect on the patient's physical and mental well-being and to help him to rationalize the effect of the comprehensive treatment process. The consultations affected the normalization of the patients' lifestyle and strengthened their sense of identity. In all above aspects, the patients get the necessary advice and current scientific information. Thus their awareness, respectively, the effectiveness of the self-management, is enhanced, achieving successful risk management. In addition to the basic consultation activity of the offices established in the towns, medical nurses were employed by contracts for home visits. Those visits are postoperative, and each patient is entitled to two free visits, paid by us. The office staff also organizes lectures engaging leading specialists in nutrition because of the particular patients' interest associated with possibilities and changes in their dietary regime, suggested by the disease. The series of activities provided by the specialists at the consultation offices substantiates the effectiveness of risk management at colorectal carcinoma. Although the importance of self-management is widely acknowledged and the patients are actively encouraged to take greater responsibility for their self-care, the scientific publications show that there is little empirical evidence and self-care is not in the patients' center of attention [9].

We would like to underline, listing the results of this survey, that the understanding of the meaning, content, and importance of self-management and self-management support, concerning particularly Bulgarian patients treated for colorectal cancer, is still insufficient. We would accentuate on the recommendations for broader scope of self-management upgrading it with the psychological and emotional aspects of health care and health management, facilitating it with appropriate effective self-management support.

4. Self-management support through promoting the awareness of colorectal cancer patients

The quick development of science provides many interesting data and facts that have to be clear not only to the therapist, manager, and health-care specialists but also to the patients and individuals at risk. In this aspect we attempted to introduce to our patients certain topics that we shall present briefly in this paper. The topics that were discussed with the patients and health-care specialists were intake of vitamins, antioxidants, and fibers as they are implemented broadly even without being prescribed by a doctor in the diet of cancer patients. The most frequent questions during the consultations were focused on those topics. Patients' awareness in this respect is recommendable not only for the self-management of the individual patient but also for the effective health management and health care.

4.1. Thiamine (vitamin B₁): colorectal cancer

The reason to focus on this problem is the patients' question "Why must we not intake vitamins of the group B?" as well as the growing amount of data showing a relationship between thiamine deficiency and the low extent of cancer incidence. Very often the recent recommendations for the nutrition of cancer patients include the recommendation to avoid the intake of vitamins of the group B and particularly vitamin B1 [10–12]. It is necessary to make it clear to patients that one and the same compound could be essential for the normal functioning of the organism and a risk factor at the same time. Are those facts due to the chemical nature of the vitamin itself or to the processes it is involved in? In this aspect many researchers are striving to find the exact answer, but there are still disputable items.

Thiamine is an essential, water-soluble vitamin, necessary for supporting the carbohydrate metabolism. It is essential for the activity of four key enzymes: pyruvate dehydrogenase, alpha-ketoglutarate dehydrogenase in the pathway of the tricarboxylic acids, transketolase in the pentose-phosphate pathway, and branched chain alpha-keto acids—dehydrogenase complex, engaged in the amino acid catabolism.

The importance of thiamine for cancer cell proliferation has been proven with the use of the thiaminase enzyme. It has been confirmed that adding thiamine to a cell culture containing thiaminase has a significant suppressing effect on the growth of cancer cells. Thiaminase causes reduction of ATP in the cancer cells underlining the key role of thiamine in maintaining the bioenergetic status of cancer cells. The role of thiamine was most clearly studied

through using its analogue—oxythiamine. It can suppress tumor growth both in vivo and in vitro. Transketolase inhibition by oxythiamine causes reduction of DNA and RNA synthesis through reduction of riboso-5-phosphate. This pentose is involved in the synthesis of all nucleotides. It has also been proven that oxythiamine is involved in apoptosis initiation in an experimental study on rats [13–15].

Together with those announcements come very interesting data from epidemiological studies showing a mono-directional relationship between low thiamine intake and very low level of cancer disease incidence rate [3, 12, 16]. It is accepted that the low dietary intake of vitamin B1 can be due both to its low content in the dietary foods and the high content of the thiaminase enzyme, decomposing thiamine. In the Asian and African countries, many food products characteristic for the local population diet contain thiaminase in higher amounts (fish, vegetables, nuts, seeds, and insects) that is the reason for the low dietary import of the vitamin. In this respect the clearest data are obtained by epidemiological studies, conducted in Gambia and Nigeria where the seasonal thiamine deficiency is a well-known health problem [10]. According to the reports of the National Cancer Register in America, providing data at global level as well, the lowest extent of prevalence of colorectal cancer, prostate cancer, and breast cancer is just in those countries (Gambia and Nigeria). Compared to them the prevalence of those cancer diseases in the Western countries is 50–100 times greater [3, 14, 15]. The exact mechanism of thiamine involvement in carcinogenesis processes is still disputable, but the epidemiological data are sufficient to make us cautious when administering vitamins of group B to population groups at risk for colorectal cancer.

It should be outlined that the scientific publications have reported data that did not reveal such relationship between thiamine deficiency and carcinogenesis [17, 18]. The relationship between changes in the thiamine status and the enhanced proliferation of the cancer tissue directs the scientific research efforts to a more detailed investigation of the role of thiamine and its involvement in the biochemical mechanisms of carcinogenesis [14, 16, 19]. The analysis of recent scientific publications proves that, in spite of the relatively small number of studies on the dependence between thiamine diet supplementation and the occurrence of cancer diseases, the majority of them confirm that thiamine deficiency in the organism could be accepted as a preventive factor against the development of various cancer diseases. The metabolic investigations reveal the dependence of cancer cells on the availability of thiamine-dependent enzymes for the processes of anabolism and proliferation and for their existence as a whole.

4.2. Antioxidants: colorectal cancer

The second aspect of the application of scientific achievements refers to the role of antioxidants. Antioxidants are a subject of comprehensive research of cancer diseases as the oxidative stress is the first step involved in the mutagenesis and carcinogenesis processes, confirmed by numerous studies [20–22]. A detailed analysis and evaluation of the recent scientific evidence concerning antioxidant effect in the case of colorectal cancer are presented in our previous works [23].

According to the “antioxidant hypothesis,” the reduction agents protect the organism against oxidative damage, and their higher level is a warranty to reduce the risk for development of many diseases. Oxidative stress plays an important role in the pathogenesis of cancer diseases as it is a disbalance between the effect of active oxygen radicals and that of the antioxidant’s defense system. Because of the substantial increase of colorectal cancer incidence rate and the associated elevated mortality rate in the last decades, a number of studies have been dedicated to the role of antioxidants in the diet of patients with colorectal cancer [20, 24, 25]. The spectrum of those compounds contains a broad variety of vitamins, amino acids, minerals, and bioactive compounds—flavonoids, carotenoids, glucosinolates, etc.

The general antitumor therapies such as surgical intervention and chemo- and radiation therapy have been and still are subjected to improvements, but it is still necessary to develop innovative approaches for the effective cancer therapy as well as for provision of healthy life style. One of the promising more recent approaches is associated with the administration of antioxidants; thus, during the last years, their chemopreventive potential was analyzed in-depth and implemented successfully in a number of cases [26, 27]. New, particular information is needed, characterizing the rich variety of antioxidant-active compounds as well as information about the approaches and specificity of their administration. It is a mass practice nowadays that patients, upon their desire, without doctor’s advice or prescription use various antioxidants that challenges the medical science to clarify those issues. Because of the existing numerous, different standpoints concerning antioxidant implementation in primary and secondary prevention of cancer diseases, it is necessary that the patients receive particular information from their doctor and dietician complying with their health status.

Numerous research studies have confirmed that the high consumption of fruits and vegetable has a certain preventive role against the development of cancer diseases that is associated with their rich content of various antioxidants [28, 29]. Having in mind that the main route of intake of exogenous antioxidants is with food which undergoes different metabolic processes in the digestive system, it is logical to assume their direct effect on the particular organs building that system. The diet for cancer diseases depends to a large extent on the involved organ determining its specificity. The most frequently applied diets are those rich in vitamins and minerals, and recently, their spectrum was enhanced with some bioactive compounds contained in the foods and food supplements [2, 25].

After the culmination of data and information about the positive effect of antioxidant implementation against the development of various cancer diseases, other evidence, not confirming similar effects, were communicated [24, 26]. Differences were outlined in the positive results from experimental studies and those from and clinical studies revealing negative effects.

Antioxidant intake is not recommended during chemo- and radiation therapy courses in order to prevent reduction of their power. In the case of diagnosed colorectal cancer after surgery and chemo- and radiation therapy, very high doses of individual antioxidants or combinations of synergically acting bioactive compounds with antioxidant activity must be administered depending on the patient’s status. In risk groups, with family history it is recommendable to include high antioxidant doses in the primary prevention programs. The

successful health management requires the administration of high doses of antioxidants also in the secondary prevention of colorectal cancer in the form of a cocktail of several antioxidants with upgrading activity.

4.3. Fibers: colorectal cancer

The third aspect of scientific evidence covers the clarification of the role of dietary fibers as the knowledge in this respect undergoes serious changes proven by scientific research [30, 31].

The necessity to know the evolution of knowledge on risk factors on one side and their contradiction with relevant preventive factors on the other are important elements of health management in the case of colorectal cancer. Logically, serious attention is given to food which, following its metabolic pathways, has direct effect on the gastrointestinal system as well as systemic effect through the nutrients and bioactive compounds contained in it. Many scientific investigations associated with the analysis and assessment of risk and preventive factors are focused on fibers. In one of our publications, we have presented very detailed information and analysis of existing scientific views on the “fibers and colorectal cancer” issue [32]. We have presented the assessment of the scientific information in two major aspects: mechanisms of fibers activity and studies on patients with colorectal cancer.

The general classic explanations of the biological activity of fibers are establishment of a larger area for development of intestinal microflora, activation of the peristaltic, and creation of a sensation of satiety. In relation to oncogenesis and colorectal cancer in particular, those explanations have their specificity determined by the anatomy and physiology of the colon. Of particular importance are the fibers’ composition, their solubility, and ability to ferment, to modify the acid-alkaline balance, and to participate indirectly in the transformation of bile acids. An important factor is also the direct physical effect on the inner lining of the colon, a fact that must not be neglected especially after surgical intervention.

Almost all studies reveal the lack of consensus on the issue and need of further studies in order to provide a particular explanation of the mechanisms involved by fibers to realize their preventive effect against colorectal cancer. The recommendations for consumption of dietary fibers after surgery should be particularly careful because of their direct effect on the colon. The lack of unified test models, the significant methodological errors in the assessment of the diet of the investigated patients, as well as the differences between the experimental and clinical trials seriously challenge the science to plan further comprehensive studies covering all dimensions of the problem dietary fibers—carcinogenesis.

5. Conclusion

This survey on the necessity of activating the self-management of patients with colorectal cancer shows a definite need to promote patients’ awareness on the etiopathogenesis of the disease, individual disease course, the role and importance of the administered drug treatment, and implementation of various therapeutic approaches and health care.

The repeating of the relationships between the discussed questions is identified as a primary task in the orientation of the patients to doctors and health-care specialists with proven professionalism with cultural competence allowing particular personal attitude to each patient.

The presented data reveal the need to conduct studies at individual level as each patient is characterized by the specificity of the disease course, awareness, psychological status, and cultural competence. Those diverse characteristics require also different self-management support in order to encourage the patients with colorectal cancer to improve and maintain a healthy lifestyle.

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References

- [1] Grazin N. Long-term conditions: Help patients to help themselves. *The Health Service Journal*. 2007;**117**:28-29
- [2] Tarraga P, Solera J, Rodriguez-Montes J. Primary and secondary prevention of colorectal cancer. *Clinical Medicine Insights: Gastroenterology*. 2014;**7**:33-46
- [3] Ribarov R. Interesting facts related to colorectal cancer epidemiology. *Archives of the Balkan Medical Union*. 2015;**50**(1):45-49
- [4] Bodenheimer T, Loring K, Holman H. Patient self-management of chronic disease in primary care. *Journal of the American Medical Association*. 2002;**288**(19):2469-2475. DOI: 10.1001/jama.288.19.2469
- [5] Ribarov R, Tz V, Ivanov A, Ivanova N. Necessity of self-management support following colorectal cancer treatment. *Archives of the Balkan Medical Union*. 2017;**52**(3):285-291
- [6] Foster C, Fenlon D. Recovery and self-management support following primary cancer treatment. *British Journal of Cancer*. 2011;**105**:S21-S28
- [7] Kidd LA. Consequences, control and appraisal: Cues and barriers to engaging in self-management among people affected by colorectal cancer-A secondary analysis of qualitative data. *Health Expectations*. 2014;**17**(4):565-578
- [8] Ribarov R. Study on the awareness of patients with colorectal cancer. The 33 Balkan medical week, 8-11 October, 2014, Bucharest, Romania. *Archives of the Balkan Medical Union*. 2014;**49**(1):A119-A120

- [9] Kidd L, Kearney N, O'Carroll R, Hubbard G. Experiences of self-care in patients with colorectal cancer: A longitudinal study. *Journal of Advanced Nursing*. 2008;**64**(5): 469-477
- [10] Boros L. Population thiamine status and varying cancer rates between Western, Asian and African counters. *Anticancer Research*. 2000;**20**:2248
- [11] Cascante M, Centelles J, Velch R. Role of thiamin (vitamin B1) and trans ketolase in tumor cell proliferation. *Nutrition and Cancer*. 2000;**36**(2):150-154
- [12] Lee B, Yanamandra K, Bocchini J. Thiamin deficiency: A possible major cause of some tumors? *Oncology Reports*. 2005;**14**:1589-1592
- [13] DeBorardinis R, Lum J, Hatzivassillon G, Thompson C. The biology of cancer & metabolic reprogramming fuels cell growth and proliferation. *Cell Metabolism*. 2008;**7**:11-20
- [14] Yang CM, Liu YZ, Liao JW, ML H. The in vitro and in vivo anti-metastatic efficacy of oxythiamine and the possible mechanisms of action. *Clinical & Experimental Metastasis*. 2010;**27**:341-349
- [15] Daily A, Liu S, Bhatnagar S, Karabakhtsian RG, Moscow JA. Low-thiamine diet increases mammary tumor latency in FVB/N-Tg(MMTVneu) mice. *International Journal for Vitamin and Nutrition Research*. 2012;**82**:298-302
- [16] Zastre J, Sweet L, Hanberry B, Ye S. Linking vitamin B1 with cancer cell metabolism. *Cancer Metabolism*. 2013;**1**:1-16
- [17] Kabat G, Miller A, Rohan T. Dietary intake of selected B vitamins in relation to risk of major cancers in women. *British Journal of Cancer*. 2008;**99**:816-821
- [18] Liu S, Monks NR, Hanes JW, Begley TP, Yu H, Moscow JA. Sensitivity of breast cancer cell lines to recombinant thiaminase I. *Cancer Chemotherapy and Pharmacology*. 2010;**66**:171-179
- [19] Willett WC. Diet and cancer: An evolving picture. *Journal of the American Medical Association*. 2005;**293**:233-237
- [20] Papaioannou D, Cooper K, Carroll C. Antioxidants in the chemoprevention of colorectal cancer and colorectal adenomas in the general population: A systematic review and meta-analysis. *Colorectal Disease*. 2011;**13**(10):1085-1099
- [21] WCRF: World Cancer Research Fund and American Institute for Cancer Research. *Colorectal Cancer Report. Food, Nutrition, Physical Activity, and the Prevention of Colorectal Cancer*. 2010. <http://www.wcrf.org>
- [22] Zhang R, Kang K, Kim K. Oxidative stress causes epigenetic alteration of CDX1 expression in colorectal cancer cells. *Gene*. 2013;**524**(2):214-219
- [23] Ribarov R. Antioxidants and colorectal cancer. *Journal of Contemporary Medical Problems*. 2015;**3**:5-11

- [24] Pais R, Dumitrascu D. Do antioxidants prevent colorectal cancer ? A meta-analysis. *Romanian Journal of Internal Medicine*. 2013;**51**(3-4):152-163
- [25] Saud S, Young M, Jones-Hall Y. Chemopreventive activity of plant flavonoid isorhamnetin in colorectal cancer is mediated by oncogenic Src and beta-catenin. *Cancer Research*. 2013;**73**(17):5473-5484
- [26] Bjelakovic G, Nagorny A, Nikolowa D. Meta-analysis: Antioxidant supplements for primary and secondary prevention of colorectal adenoma. *Alimentary Pharmacology & Therapeutics*. 2006;**15**(24):281-291
- [27] Wang Z, Ohnaka K, Morita M. Dietary polyphenols and colorectal cancer risk: the Fukuoka colorectal cancer study. *World Journal of Gastroenterology*. 2013;**19**(17):2683-2690
- [28] Hou N, Huo D, Dignam J. Prevention of colorectal cancer and dietary management. *Chinese Clinical Oncology*. 2013;**2**:13-26
- [29] Royston K, Tollefsbol T. The epigenetic impact of cruciferous vegetables on cancer prevention. *Current Pharmacology Reports*. 2015;**1**(1):46-51
- [30] Peters U, Sinha R, Chatterjee N. Dietary fibre and colorectal adenoma in a colorectal cancer early detection programme. *Lancet*. 2003;**361**:1491-1495
- [31] Schatzkin A, Mouw T, Park Y. Dietary fiber and whole-grain consumption in relation to colorectal cancer in NIH-AARP diet and health study. *The American Journal of Clinical Nutrition*. 2007;**85**:1353-1360
- [32] Ribarov R, Tz V, Ivanov A. Dietary fibers and colorectal cancer. *Archives of the Balkan Medical Union*. 2015;**50**(3):410-413