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Colorectal Cancer Surgical Treatment, our Experience

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ABSTRACT

Introduction: Colorectal cancer is the third most common cancer in the male and female population. Surgical treatment of colorectal cancer is based on tumor resection and removal of associated lymph glands. **Aim:** The aim of the paper is to present data from a five-year retrospective study of the surgical treatment of colorectal cancer at the Clinic for General and Abdominal Surgery at the Clinical Center of the University of Sarajevo. **Methods:** This is a retrospective five-year clinical trial (2014-2018) of patients with and surgically treated for colorectal cancer at the Clinic for General and Abdominal Surgery at the Clinical Center of Sarajevo University. **Results:** In the 2014-2018 period, n = 11 172 patients were hospitalized at the Clinic, of which n = 732 were surgically treated for colorectal cancer. 69.80% were operated in an elective program. 30.20% were made as emergencies. 51.09% were male patients and 48.36% were female patients. 97.20% were made by open technique. 2.10% operated by minimally invasive procedure. the most common type of colon tumor is Adenocarcinomas are the most common with 79%. **Conclusions:** Better prevention and early detection are required to reduce the incidence of patients, which ultimately leads to more effective treatment and longer survival of colon cancer patients. Operative surgical principles must be adapted to modern trends, minimally invasive procedures (laparoscopic surgery, robotic surgery).

Keywords: colorectal, cancer, surgical treatment, prevention.

1. INTRODUCTION

Colorectal cancer is the third most common cancer in male and female population, just behind prostate cancer, breast cancer and lung cancer leading in both genders. In 2018, over 1.8 million new cases were diagnosed. Western countries are observing a growing incidence of colon cancer due to increased consumption of meat and animal originated fat. Surgical treatment of colorectal cancer is based on tumor resection and removal of surrounding lymph nodes. Operative principles of any resection, whether minimally invasive technique (laparoscopic) or an open surgical approach, need to follow oncological guidelines of resection.

2. AIM

The goal of the study is to present data of five year retrospective research of surgical treatment of colorectal cancer at the Clinic for General and Abdominal surgery, Clinical Centre University of Sarajevo.

3. METHODS

The study represents a five year long clinical research (2014-2018) on patients surgically treated for colorectal cancer on the Clinic for General and Abdominal Surgery, University of Sarajevo (Ethical committee license number 10-01-2-1186/19, Sarajevo, July 12th 2019, 10-01-35568 University of Sarajevo, Medical faculty). Material used in study is patient's histories, operative protocols and hospitalized patient protocols. All data were analyzed by descriptive statistics and presented in tables and graphs.

4. RESULTS

In the period 2014-2018, total number of n=11 172 patients were hospitalized at the Clinic, of which n=732 were operatively treated for colon tumor (cancer). Out of total number of patients 69, 80% were treated in elective program and those patients had pathologically verified malignant disease which was presented on a multi-disciplinary oncologic meeting, while 30, 20% were treated as emergency cases who were postoperatively confirmed as malignant.

Gender representation of operated patients was almost equal, 51, 09% were male patients, 48, 36% were females.

According to age groups, colorectal cancer is the most frequent in persons over the age of 50 (93%). Patients in the age group 20-49 years account for 6, 83%, with an increase of colorectal cancer worldwide in this age group. Youngest surgically treated patient was 25 years old, while the oldest was 94.

Majority of patients are from the Sarajevo Canton, followed by Zenica-Doboj Canton 3, 65%, and Bosnia-Podrinje canton 2, 05%.

Speaking of surgical treatment of colorectal cancer majority of operations 97, 20% was performed by using an open method, while only n=16 of operation started laparoscopically, out of which n=12 or 2, 10% were successfully finished using minimally invasive procedure, whereas in four a conversion was performed. With regards to consulted literature, it is impossible to make comparison between open and minimally invasive procedures and to bring conclusions on such small pattern.

Out of total n=732 operated patients, in n=96 patients or 3, 11%, a re-intervention was performed, with postoperative intestinal entanglement and wound dehiscence as a most common reason for re-intervention. Average hospitalization by patient was 15, 9 days.

In the five year review we noted n=30 (4, 10%) of fatal postoperative outcomes.

1.	Anus	11	1,59%
2.	Ascending colon	174	25,11%
3.	Descending colon	35	5,05%
4.	Rectum	320	46,18%
5.	Sigmoid colon	123	17,75%
6.	Transverse colon	30	4,33%

Table 1. Localization of tumor

Most common localization of primary tumor was in rectum, and most commonly histological type of tumor was adenocarcinoma (79%).

1.	Adenocarcinoma	365	79,00%
2.	Mucinous colorectal adenocarcinoma	67	14,50%
3.	Adenocarcinoma recidivans	5	1,08%
4.	Carcinoma in situ	2	0,43%
5.	Carcinoma lobululare meta colonis	1	0,22%
6.	Neuroendocrine carcinoma	2	0,43%
7.	Leiomyosarcoma	1	0,22%
8.	Melanoma malignum recti	1	0,22%
9.	Pseudomyxoma peritonei	1	0,22%
10.	Signet ring cell carcinoma	5	1,08%
11.	Squamous cell carcinoma	4	0,87%
12.	Serrated adenoma	6	1,30%
13.	Tubulovillous adenoma	2	0,43%

Table 2. Histological diagnoses

5. DISCUSSION

Out of total number of hospitalized patients in the five year period, both elective and emergency cases of colorectal cancer accounted for 6, 55%. Difference between genders was only 2% in favor of male population. Consulted literature shows similar results in favor of male population, stating that male population faces also higher morbidity and mortality rates in comparison to female in all age groups.

CIS	6	1,41%
Gradus I	20	4,69%
Gradus II	316	74,18%
Gradus III	82	19,25%
Gradus IV	2	0,47%

Table 3. Tumor grade

Dukes A	25	9,54%
Dukes B	82	31,30%
Dukes C	155	59,16%

Table 4. Tumor staging. The Dukes classification

Over 90% of patients are those resident in the Sarajevo Canton. The remaining part are patients from other cantons, Republic Srpska entity (0, 27%) and foreign citizens (0, 41%).

Only 2, 80% of operative procedures on colorectal cancer started by using minimally invasive technique (laparoscopy). Over 97% of operations were performed by using open method. Global trends, as well as current literature, favor laparoscopic (minimally invasive) technique. Numerous researches highlight benefits of laparoscopy, such as reduced blood loss intraoperatively, better and faster postoperative recovery, better immune ad inflammatory response compared to open method. Time of overall survival (OS) and Progression free period (PFS) has no importance in relation to selected operation treatment (LAP vs open).

The only lack of laparoscopic technique compared to open technique was the financial aspect (operational costs are higher in laparoscopy) as well as duration of surgery which is somewhat longer. Duration of hospitalization upon open method procedures is twice as longer. Literature shows significantly shorter period of hospitalization in patients treated laparoscopically (approx. 7 days). Three year research of postoperative mortality (POM) 30 days upon colorectal resection is 5%. In our research postoperative mortality is noted only in time of hospitalization, so it is to assume that it is somewhat higher, in accordance to literature. The most common localization of malignant tumor is left colon (descendent, sigmoid, rectum) with more than 75% of cases, the rest consists of right colon, transversal colon and anal canal. Literature shows most frequent localization of tumor in the right colon area. Adenocarcinoma is the most common patho-histological type of tumors in almost 80% of patients in examined group. Consulted literature also shows that mucinous adenocarcinoma is represented in 10-20% which correlates with our research. Nowadays, the most cited classification is the one referring to low grade and high grade tumors, low grade tumors (G1 and G2) representing 78%, while high grade (G3 and G4) in 20%. In our research, data correspond to current scientific indicators, however grade tumor was represented in significantly lower number of cases than showed in current literature (15-20%). According to the Dukes clas-

sification, most common type is C stage of cancer with a total of 59, 16% of cases, with five year survival rate of 50%. The best chance for five year survival is in A group, over 90%.

6. CONCLUSION

A better prevention and early detection are required in order to reduce rate of newly diagnosed cases which leads to more efficient treating and longer survival of patients suffering from colon cancer.

Operative surgical principles need to be adjusted to modern trends, that is, to minimally invasive procedures (laparoscopic procedures, robotic surgery).

Digitalization of medical records for the purpose of easier patient follow-up and more efficient scientific projects is also very important.

- **Author's contribution**: Each author gave substantial contribution to the conception or design of the work and in the acquisition, analysis and interpretation of data for the work. Each author had role in drafting the work and revising it critically for important intellectual content. Each author gave final approval of the version to be published and they agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
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