

CLINICAL SIGNIFICANCE OF PRIMARY TUMOR RESECTION IN METASTATIC COLORECTAL CANCER

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ABSTRACT

Objective: The aim of the present study is to determine the effect of primary tumor resection on overall survival and progression-free survival in metastatic colorectal cancer. **Methods:** The study sample included 561 patients with metastatic CRC who attended the Medical Oncology Department, Lattakia University Hospital during the period 2015- 2021 divided into two groups; with and without primary tumor resection. OS and PFS were studied and compared between groups in terms of mean and standard deviation. **Results:** It was found that there was a significant difference $P < 0.05$ in the OS and PFS rates between the two groups, as the patients who underwent primary tumor resection had higher OS and PFS. **Conclusion:** Primary tumor resection improves OS and PFS rates in patients with metastatic CRC.

KEYWORDS: metastatic colorectal cancer, overall survival, progression-free survival.

1. INTRODUCTION

Colorectal cancer (CRC) is a major public health problem and ranks third among the most common cancers worldwide with 1.8 million new cases diagnosed every year.^[1] It is also the second leading cause of cancer-related deaths, with an estimated 880,000 deaths per year, according to GLOBOCAN.^[2] 20-30 % of patients have metastases at diagnosis and are classified at Stage IV^[3,4], and within our center were about 30 %.

In the treatment of Stage IV CRC, primary tumor resection (PTR) may be useful in relieving complications associated with the tumor and also in avoiding life-threatening conditions such as severe bleeding, intestinal obstruction and perforation.^[5] However, it remains controversial whether primary tumor resection is necessary in patients with asymptomatic metastatic colorectal tumors.^[6-8]

Some studies have indicated that primary tumor resection in asymptomatic metastatic colorectal tumor patients can contribute to the prevention of acute complications such as obstruction and perforation and improve the overall survival rate and the progression-free survival rate.^[6-8] In contrast, chemotherapy can be used in the fourth stage of CRC as an initial treatment before surgical excision.^[7] The progress of systemic chemotherapy (the use of combined chemotherapy with targeted therapy) significantly increased the progression-free survival rate of patients with metastatic CRC by a period ranging from

six months to almost 24 months.^[7,8]

2. MATERIALS AND METHODS

2.1. Objectives: Our study aimed to determine the effect of primary tumor resection on overall survival and progression-free survival in metastatic colorectal cancer.

2.2. Study design: a retrospective observational cohort study was conducted at the Department of Oncology, Lattakia University Hospital between 2015-2021.

2.3. Study sample: 561 patients with metastatic colorectal cancer divided into two groups:

- I: 320 patients with primary tumor resection.
- II: 241 patients without primary tumor resection.

2.4. Inclusion Criteria: All patients with metastatic colorectal tumors.

2.5. Exclusion Criteria

- Patients with non-metastatic colorectal tumors.
- Lack of complete information on the studied variables.

3. Statistical analysis

After the data collection was completed, the data was entered into the computer and analyzed using the SPSS statistical program (IBM SPSS v25). Values were

expressed as mean \pm standard deviation for quantitative variables and as percentage for qualitative variables. The T-student test was used to study the differences of means between two independent groups and Chi-square test to study the relationship between qualitative variables. $P < 0.05$ was considered statistically significant.

4. RESULTS

In this study, among the 561 patients with metastatic colorectal cancer, 320 patients underwent primary tumor resection. The age of the sample patients ranged from 16 to 89 years with a mean of 58.50 ± 12.8 years. (59.9%) of patients were males and (40.1%) were females.

The most common tumor site was the rectum (40.5%), followed by descending colon (34.4%), ascending colon (18.5%) and transverse colon (6.6%) (Table 1). The most common metastases were liver metastases (60.8%) while the least common were brain metastases (1.2 %) (Table 1). The mean overall survival rate and progression-free survival rate values are represented in (Table 2).

Table 1: Distribution of study sample according to site of cancer and metastases.

Site of cancer	(%)	Metastases	(%)
Rectum	40.5%	Liver	60.8%
descending colon	34.4%	Peritoneum	21.8%
ascending colon	18.5%	Combined	8%
transverse colon	6.6%	Lung	6.5%
		Bone	1.6%
		Brain	1.3%

Table 2: OS and PFS in the two study groups.

	With PTR Mean \pm SD	Without PTR Mean \pm SD	P-value
OS	1.79 ± 0.5	1.12 ± 0.3	0.0001
PFS	0.84 ± 0.2	0.65 ± 0.2	0.001

5. DISCUSSION

Although there are many previous studies, but so far there is no common consensus regarding the topic of PTR in metastatic CRC, since the results of studies investigating the topic of PTR before systemic therapy are divergent.

Our current study involved 561 patients with metastatic CRC aged between 16-89 years, (59.9%) of them were males and (40.1%) were females. The most common tumor site was the rectum (40.5%), and the majority of metastases were liver metastases (60.8%). The mean overall survival rate values were 1.79 ± 0.5 in the group of primary tumor resection and 1.12 ± 0.3 in the other group. $P = 0.0001$, suggesting that, there is a statistically significant differences between the two groups, as the patients who underwent PTR had a higher OS rate. This is in accordance with the study conducted by Ghiringhelli *et al.*^[9], who also found an improvement in OS rate in patients with PTR. Park *et al.*^[10] found that the PTR followed by chemotherapy led to an improvement in OS rate for two years in patients with asymptomatic stage IV CRC compared to chemotherapy alone.

The mean progression-free survival rate values were 0.84 ± 0.2 in the first group and 0.65 ± 0.2 in the second group. $P = 0.001$, suggesting that, there is a statistically significant differences between the two groups, as the patients who underwent primary tumor resection had a higher PFS rate. This differs with Ghiringhelli *et al.* and Kanemitsu *et al.*^[11] studies who no found a significant difference in PFS rate between groups.

6. CONCLUSION

Our study found that primary tumor resection improves OS and PFS rates in patients with metastatic CRC.

7. Study Limitation

The exceptional circumstances that the country is going through, which negatively affected the access to a larger sample size that supports the results of this research.

8. Statement & Declarations

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8.2. Competing Interests: The authors have no relevant financial or non- financial interests to disclose.

8.3. Author Contributions: All authors contributed to the study conception and design. Material preparation, data collection and analysis. All authors read and approved the final manuscript.

8.4. Ethical Approval: This research received approval from the scientific research ethics committee at Lattakia University and Lattakia University Hospital.

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