

## Transarterial Chemoembolization in the Treatment of Gastric Cancer with Liver Metastases

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### Abstract

The treatment of gastric cancer remains an urgent problem in Oncology. One of the unresolved problems in the treatment of gastric cancer remains the patients with liver metastases. With the development of interventional radiology, it became possible to treat gastric cancer patients with liver metastases.

**The objective of the Research:** Improving the treatment outcomes of gastric cancer patients with liver metastases by using transarterial chemoembolization (TACE).

**Materials and Methods:** We analyzed the results of 60 patients for the period 2008-2020, who sought medical attention due to metastatic liver disease, previously they received the combination therapy at various times. The average age of patients was  $58.1 \pm 5.8$  years. When planning TACE, the general condition of all patients was over 80% according to Karnofsky Performance Status, according to ECOG 1-2. All patients underwent TACE of metastatic foci of the liver with the use of Lipiodol (6-8 ml) + Doxorubicinum (25 mg/m<sup>2</sup>). The interval between TACE cycles was 1.5-2 months. Each patient underwent 5-6 courses of TACE.

**The Outcomes and its Discussion:** Immediate results showed the treatment efficacy after 2 courses of TACE in 49 (81.7%) patients: partial regression - 36 (60%) patients, significant regression - 13 (21.6%) patients, stabilization of the process - 11 (18.3%) patients. The case follow-up showed the following results: 37 (61.7%) patients lived for 6 months, 24 (40%) patients lived for 12 months, 11 (18.3%) patients lived for 18 months, 8 (13.3%) patients lived for 24 months, and only 3 (5.0%) patients lived for 36 months. Median survival was  $15.5 \pm 1.2$  months.

**Conclusions:** The immediate and long-term results of the research, performing TACE in gastric cancer patients with metastases was effective in 50% of cases. The case follow-up for 3 years showed that 37 (61.7%) patients lived for 6 months, 24 (40%) patients lived for 12 months, 11 (18.3%) patients lived for 18 months, 8 (13.3%) patients lived for 24 months, and only 3 (5.0%) patients lived for 36 months. At the same time, the median survival was  $15.5 \pm 1.2$  months.

Currently, to improve the survival and quality of life of gastric cancer patients with metastases, the technique of transarterial chemoembolization can be considered as an effective, low-toxic method of treatment and it can be the method of choice.

**Keywords:** Chemoembolization; Gastric Cancer; Liver Metastases

## Introduction

Currently, gastric cancer (GC) is the second cause of death from malignant tumors worldwide. It is estimated that 35% of patients develop synchronous distant metastases. The vast majority of patients have metastatic liver damage, sometimes accompanied by synchronous peritoneal and pulmonary spread [1]. As cancer develops, symptoms such as nausea or vomiting occur, along with gastric upset and dysphagia, blood loss in the form of melena or hematemesis, as well as anorexia and weight loss. Spreading to the liver, it also causes jaundice due to hepatomegaly and extreme emaciation.

Despite recent studies of treatment strategies for the fight against metastatic disease of gastric cancer, surgical resection seems to be the only potentially curative approach. Unfortunately, most patients cannot undergo surgery. As for the treatment methods of the advanced stage of the disease, the role of metastasectomy is still controversial and rather unclear, while prolonged survival was successful only under definite circumstances. Systemic chemotherapy remains another option, as well as local treatment such as cryotherapy, radiofrequency ablation or transcatheter arterial chemoembolization [1].

At the time of primary diagnosis of gastric cancer, there is still a number of patients with 3-4 cancer stages, high annual mortality and low 5-year survival of patients [2,3].

One of the urgent and unresolved problems in the treatment of gastric cancer remains the patients with liver metastases. The incidence of gastric cancer with liver metastases is 9.9-18.7%, with an average survival time of 11 months and the 5-year survival rate of < 20%. Interdisciplinary treatment is gradually gaining recognition as the most important method. However, specific approaches for the treatment of this category of patients are still unclear. The treatment guidelines of such patients have been developed and adopted in a number of countries. For example, in the People's Republic of China, there was reached a decision by means of consensus concerning diagnosis and treatment of gastric cancer patients with liver metastases [4].

With the development of interventional radiology, it became possible to treat gastric cancer patients with liver metastases, both

primary patients and the newly detected cases, when liver metastases are a consequence of previous neoplastic process [5,6].

Over the past 5-7 years, a number of authors have developed an intense interest to the treatment of gastric cancer patients with liver metastases using transarterial chemoembolization, both independently and in combination with chemotherapy and surgical treatment, which is confirmed by a number of publications in 2015-2020 [7-11].

## The Objective of the Research

Improving the treatment outcomes of gastric cancer patients with liver metastases through the use of transarterial chemoembolization (TACE).

## Materials and Methods

We have obtained the results of combination therapy of 60 patients with gastric cancer treated at City Cancer Center for the period from 2008 to 2020. 60 patients were admitted with isolated multiple liver metastases, previously they were registered at the Dispensary and received combination therapy at various times. By age, the patients were grouped as follows: 41-50 years old- 44% of patients, 51-60 years old - 26% and over 60 years old -30% of patients. The average age of patients was  $58.1 \pm 5.8$  years. The duration of the anamnesis ranged from 1 to 12 months, averaging 6.7 months.

The prevalence of neoplastic process according to TNM classification was as follows:  $T_3N_0M_0$  - 20 (33.3%) patients,  $T_3N_1M_0$  - 22 (36.6%) patients and  $T_3N_2M_0$  - 18 (30%) patients. Histologically, various types of adenocarcinoma were detected in all patients. Previously, all patients underwent radical surgery at the first stage – gastrectomy in the volume of R-0 with D2 lymphodissection. In the postoperative period, 40 patients ( $T_3N_1M_0$  –  $T_3N_2M_0$  process stages) received 4 - 6 courses of adjuvant systemic chemotherapy according to RF scheme (Cisplatinum (75mg/m<sup>2</sup>) + 5 Phthoruracilum (750mg/m<sup>2</sup>) in 1,2,3,4 days) with an interval of 28 days. When planning TACE, the general condition of all patients was over 80% according to Karnofsky Performance Status, according to ECOG 1-2. All patients underwent TACE of metastatic foci of the liver with the use of Lipiodol (6-8 ml) + Doxorubicinum (25 mg/m<sup>2</sup>).

The interval between TACE cycles was 1.5-2 months. Each patient underwent 5-6 courses of TACE (Figure 1,2).

**Figure 1:** Angiogram of the patient D., 56 years old with a diagnosis of gastric cancer T3N1M0, III stage. Multiple liver metastases (before TACE).

**Figure 2:** Angiogram of the patient D., 56 years old with a diagnosis of gastric cancer T3N1M0, III stage. Multiple liver metastases (after TACE).

### The Outcomes and their Discussion

The efficacy of TACE was evaluated after every 2 courses using clinical and radiation research methods. Immediate results showed

the treatment efficacy after 2 courses of TACE in 49 (81.7%) patients: partial regression - 36 (60%) patients and significant regression - 13 (21.6%) patients, stabilization of the process - 11 (18.3%) patients.

The subsequent results of evaluating the treatment efficacy after 4 and 6 courses of TACE were identical. The partial regression of the process was detected in 18 (30%) patients, stabilization was observed in 12 (20%) patients. The progression for 8-9 months of treatment was observed in 30 (50%) patients. When assessing the general condition of patients, special attention was paid to the quality of patients' life.

The general condition of all patients who had a positive treatment outcome according to Karnofsky Performance Status, remained at the level of 75-80% (ECOG 1-2), which practically did not incapacitate patients or require extended admission. The time of hospital admission in each TACE course (cycle) averaged 5+2 days. The case follow-up showed the following results (in terms of 6, 12, 18, 24, 36 months): 37 (61.7%) patients lived for 6 months, 24 (40%) patients lived for 12 months, 11 (18.3%) patients lived for 18 months, 8 (13.3%) patients lived for 24 months, and only 3 (5.0%) patients lived for 36 months. Median survival was 15.5 ± 1.2 months (Figure 3).

### Conclusion

The immediate and long-term results of the research, performing TACE in gastric cancer patients with metastases was effective in 50% of cases. The case follow-up for 3 years showed that 37 (61.7%) patients lived for 6 months, 24 (40%) patients lived for 12 months, 11 (18.3%) patients lived for 18 months, 8 (13.3%) patients lived for 24 months, and only 3 (5.0%) patients lived for 36 months. At the same time, the median survival was 15.5 ± 1.2 months.

Currently, TACE technique for gastric cancer liver metastases can be considered as an effective, low-toxic treatment method and it can be the method of choice for improving the survival and quality of life of this serious category of patients.

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