ISSN 2618-1584 Vol. 6, Issue 9: 44-48, DOI: 10.25236/FMSR.2024.060907

Research Progress in the Treatment of Liver Cancer with Integrated Traditional Chinese and Western Medicine

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Abstract: *By analyzing the knowledge of primary liver cancer in Chinese medicine books and modern medicine, we will explore the current status of the knowledge and treatment methods of primary liver cancer in Chinese and Western medicine, apply the unique features of Chinese medicine and Western medicine, make the correct decision of combining Chinese and Western medicine in an integrated and holistic way, and use the treatment methods and treatment methods suitable for this patient in this period, instead of limiting to a single Chinese medicine therapy or Western medicine therapy, in order to promote the recovery of the patient, and provide new ideas for the primary This will promote the recovery of patients and provide new ideas for the clinical treatment of primary liver cancer.*

Keywords: *Hepatocellular carcinoma, Combination of Chinese and Western medicine, Research progress*

1. Introduction

Liver cancer can be classified into primary and secondary, and the discussion of liver cancer in this article refers to the understanding and treatment of primary liver cancer in Chinese and western medicine. Primary liver cancer mainly includes three different pathological types, namely hepatocellular carcinoma, intrahepatic cholangiocarcinoma, and mixed type of HCC-ICC, and the common clinical term "liver cancer" mainly refers to HCC, i.e. hepatocellular carcinoma [1]. Hepatocellular carcinoma has become the fifth most common cancer in the world, and in the latest global cancer statistics in 2020, liver cancer accounted for 4.6% of all cancers, of which men accounted for as high as 6.3%; in China, in 2020, the proportion of newly-emerged primary liver cancers among all cancers reached 9%, and the mortality rate of liver cancer reached 23.8%, which is a significant increase in the incidence rate of primary liver cancers among the malignant tumors. Among the common malignant tumors in China, the incidence rate of primary liver cancer ranks the fifth and the mortality rate ranks the second, which shows that liver cancer has become a serious hidden danger to the society and people's health.

2. Knowledge and treatment of primary liver cancer in western medicine

2.1 Etiology and Pathogenesis

The etiology and pathogenesis of primary liver cancer are complicated. In China, the most common cause of liver cancer is hepatitis B virus infection, but as of now, the specific pathogenic cause of liver cancer is still not very clear. Viral hepatitis: HBV infection is the main cause of liver cancer patients in China, and HCV infection is common in western countries. Cancer occurs when two factors, activation of proto-oncogenes and inactivation of oncogenes, damage the DNA sequence of the host cell, causing it to be destroyed or reintegrated, and thus cancerous transformation occurs. Epidemiological studies have shown that the incidence of primary liver cancer increases in areas where food is contaminated with aflatoxin. One of the reasons for this may be that the metabolites of aflatoxin can activate both proto-oncogenes and oncogenes, thus leading to the development of liver cancer. After the liver is damaged to a large extent, liver cells will undergo degeneration and necrosis as well as hepatic fibrosis, and studies have shown that IL-17 promotes cirrhosis and hepatocellular carcinoma; Hepatitis B, cirrhosis and hepatocellular carcinoma are often referred to as the ‘trilogy of hepatocellular carcinoma’; therefore, cirrhosis is also, to some extent, an important cause of primary hepatocellular carcinoma. In addition,

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drinking large quantities of contaminated water for a long time, smoking excessively for a long time and exposure to chemical poisons may also lead to the development of liver cancer.

2.2 Diagnosis

2.2.1 Liver cancer markers

Studies have shown that the detection rate of liver cancer is higher when AFP, CA19-9 and CEA are used in combination than when they are used alone. Among them, the detection of AFP is one of the most effective tumor markers for the diagnosis of primary liver cancer, and clinically, AFP is mainly used to screen early liver cancer, which has certain clinical significance [2]. Among them, AFP is the most recognized, and is mandatory in the Asian Pacific association for the study of the liver (APASL) HCC diagnostic manual and China's Primary Liver Cancer Diagnostic and Treatment Guidelines [3].

2.2.2 Imaging examinations.

For imaging of hepatocellular carcinoma the current preferred method is ultrasound (US), which can determine the nature of the tumor and also guide the performance of a puncture biopsy of the liver.

In CT/MRI scanning, liver cancer foci mainly appear as low-density shadows, and ‘halo sign’ may also appear in some patients' imaging. The enhancement scan is ‘fast in, fast out’, i.e. a lesion in the arterial phase of the enhancement scan will have a higher density than the surrounding normal liver tissue, but this will not be maintained, so the density will fall rapidly to the point where it is lower than the density of normal liver tissue. The main features of imaging screening are: easy operation, flexible and intuitive, sensitivity between 65%-80%, specificity >90%, which can sensitively detect suspected space-occupying lesions in the liver at an early stage.

2.2.3 Liver puncture biopsy

Under the guidance of US or CT, puncture of the liver for histological examination is the gold standard for confirming the diagnosis of hepatocellular carcinoma. Hepatocellular carcinoma (this paper refers to primary hepatocellular carcinoma) should be differentiated from secondary hepatocellular carcinoma, cirrhosis or other tumors of the liver such as hemangiomas and hepatic adenomas in clinical practice.

2.3 Pathological Typing

Gross typing: ①massive type, ②nodular type, ③diffuse type.

Tissue typing: ① hepatocellular carcinoma: tumors caused by malignant proliferation of hepatocytes, which is the most common; ② intrahepatic cholangiocarcinoma: tumors caused by malignant proliferation of intrahepatic biliary epithelial cells; ③ mixed-type hepatocellular carcinoma: the least common.

2.4 Metastatic Pathways

Intrahepatic metastasis: multiple metastatic foci will be formed in the liver due to the shedding of cancer embolus. Extrahepatic metastasis: Hematogenous metastasis: the most common hepatocellular carcinoma metastasizes to the lungs through the bloodstream. Lymphatic metastasis: hilar lymph nodes and supraclavicular lymph nodes. Implantation metastasis: rare, can be planted in the peritoneum and pelvis, etc. Women can have implantation metastasis of ovary.

2.5 Western Medical Treatment

According to the International Child-Pugh Classification of Primary Liver Cancer, the treatment of primary liver cancer with grade Child-Pugh A/B is mainly based on surgical resection; Child-Pugh C is mainly based on symptomatic supportive comprehensive treatment. The treatment modalities also include local radiotherapy, local ablation, immunotherapy, targeted therapy, and nanomaterials therapy [4].Surgical treatment: clinically, the following factors should be considered comprehensively: the degree of impairment of liver function, extrahepatic metastasis, the degree of vascular invasion, the number and volume size of the tumor, the clinical stage, and the patient's economic status, so as to make a decision on the most appropriate treatment for the patient under that stage. Radiotherapy: With the development of radiotherapy technology, according to many clinical studies, radiotherapy can be performed at all stages of liver cancer [5]. Although radiotherapy is one of the effective means of treating HCC, it is prone

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to complications of radiotherapy-induced liver diseases (RILDs), which can impair liver function [6]. Immunotherapy: At present, it is found that DC-CIK cell immunotherapy [7] can improve the immune function of the body to a certain extent, laser immunotherapy [8] has anti-tumor effect on liver cancer. The above methods enhance the effective prevention and treatment of liver cancer by enhancing the body immunity of liver cancer patients so that the specific antigens of liver cancer cells can be recognized by the immune system, thus enabling the body's immune barrier to function and enhancing the effective prevention and treatment of liver Cancer. Cell-targeted therapy: in the world there are now a total of four targeted drugs that are allowed to be used in the treatment of HCC, including two kinds of anti-angiogenic small molecule targeted drugs and monoclonal antibodies, the common anti-angiogenic drug sorafenib was approved for the treatment of hepatocellular carcinoma in 2005, and now it has become the first-line standard drug for the treatment of hepatocellular carcinoma [9].

3. Chinese Medicine's Understanding and Treatment of Primary Liver Cancer

3.1 Discussions on Liver Cancer in Chinese Medicine Classics

There is a long history of records about cancer in Chinese medicine, and cancer is recorded as ‘tumor’ in ancient books. In ancient texts, cancer was recorded as ‘tumor’, and this name was recorded as early as in the oracle bone inscriptions of Yin Xu. In Sheng Ji Zong Lu, it is written that tumor means the formation of a tangible mass that stagnates in the body and is difficult to remove. The name ‘primary liver cancer’ has not existed in many works of Chinese medicine since ancient times. Now, according to its clinical manifestations, it is found that it is similar to ‘accumulation’, ‘aggregation’, ‘hypochondriac pain’, ‘bulging’, ‘jaundice’, ‘gall disease’ in Chinese medicine, ‘rock’, and “obstruction in the abdomen” have many similar commonalities [10]. In modern Chinese medicine, hepatocellular carcinoma is most often referred to as ‘liver accumulation’. Accumulation refers to a lumpy nodule in the abdomen that feels distended or painful, and it has a fixed location. In Chinese medicine, accumulation belongs to tangible substances, and the disease is located in the blood division, which is mostly a lesion of the five viscera. Poly evidence also refers to the abdominal feeling of distension or pain in the lumpy nodules, with the accumulation of evidence is different from the poly evidence of the lump has no fixed location, poly belongs to the invisible things, the disease is located in the gas, more than six viscera of the lesions. ‘Accumulation’ and “poly” in the “Yellow Emperor's Classic of Internal Medicine” and known as “accumulation”, often appearing together on its discussion. The Classic of Difficulties - Fifty-six Difficulties says: ‘The accumulation of the five viscera, the accumulation of the liver, is called fat qi.’ From the relevant discussions in ancient books, we know that liver cancer should belong to the category of ‘accumulation disease’.

3.2 Causes and Mechanisms of Chinese Medicine

Insufficiency of positive qi: positive qi is regarded as one of the important factors in Chinese medicine to resist the root of evil and whether or not the disease, positive qi is sufficient, it is not easy to get sick, on the contrary, if the positive qi is weak, it is easier for the evil to invade the body and cause disease. The ‘Nei Jing’ cloud: ‘positive qi within, evil cannot be dry. Where evil comes from, its qi will be weak.’ The occurrence of primary liver cancer is mainly due to the deficiency of positive qi, which is caused by innate deficiency or prolonged illness, resulting in the weakening of the functions of the spleen and the stomach, the inability of qi transport and transformation, and the unfavorable transmission of qi, blood and fluid, which results in stagnation of qi, stasis of blood, and condensation of phlegm, thus forming accumulation. Invasion of foreign evils: the strength of evils is regarded as another major factor in whether or not to cause the organism to fall ill. Strong evils and deficiency of positive qi cause illness, weak evils and sufficient positive qi do not cause illness, and when evils and positive qi are not on a par with each other, they prolong the course of the disease and make it difficult to be cured. The organism feels from outside the organism, especially the nature of the six obscene evil qi and lead to the five viscera and six bowels of the function malfunction, qi, blood, fluid and other nutrients are forced to be blocked, so the body generates phlegm, this is the pathological factors, qi stagnation, blood stasis, phlegm cohesion set too long to form the accumulation. Emotional disorders: Zhang Zihe, ‘Confucians’ Duties to Their Parents’: ‘The accumulation of the formation of also, or due to anger, joy, sadness, thoughts, fear of the gas.’ Internal injuries to the seven emotions and violent anger injure the liver, resulting in liver qi stagnation, and if qi does not flow smoothly, it is unable to promote blood circulation, and blood stasis stops internally. Internal injuries to diet: ‘Tai Ping Sheng Hui Fang’ advices that uncontrolled diet and addiction to raw and cold food will damage the spleen and stomach, leading to weakening of the spleen

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and stomach and indigestion, so that undigested food and poorly functioning qi wrestle with each other to form tangible lumps of nodules, which get bigger and bigger and eventually become fixed. The recurrence of other diseases: when the body is weak after a long illness and the evil has not yet weakened, the residual evil lingers on, and blood stasis and internal obstruction are caused. Or malaria for a long time to form the mother of malaria. The pathogenesis of liver stagnation is mainly liver qi stagnation and blood stasis. 'Blood and Qi are stagnant, so they accumulate internally'. Qi, blood, phlegm and turbidity block the way and wrestle with each other to form lumps.

3.3 Chinese Medicine's Diagnosis and Treatment of Liver Cancer

Chinese medicine pays attention to the overall concept of disease, and there is an ancient saying that 'when one sees the disease of liver, one knows that the liver spreads to the spleen, and the spleen should be strengthened first'. Therefore, for primary liver cancer, liver and spleen are often treated together, although the lesion site is mainly in the liver, the liver and spleen are closely related to each other. In Zhang Jiebin 's Jing Yue Quan Shu, it was believed that there were four methods of attacking, eliminating, dispersing and tonifying in the treatment of accumulated evidence. Li Zhongzi's 'Yi Zong Bi Du' integrates attack and tonic, pointing out that the treatment should not be rushed, and should be 'repeatedly attacked and tonified for a period of time in order to level the situation'. The main pathological factor of this disease is blood stasis, and the main clinical manifestation is abdominal lumps, so the principle of treatment is to activate blood circulation and eliminate blood stasis, and to soften the hardness and disperse the nodules, and the softening and dispersing products such as leech, gadfly, stinging insect, mountain beetle, oyster, turtle shell, kombu, seaweed, etc., are often used. The When treating this disease, it must be kept in mind that treating the actuality should take care of its deficiency, and do not forget the actuality when tonifying the deficiency. Mao Yining proposed the treatment of primary hepatocellular carcinoma with diaphragm-under-diaphragm and blood-stasis soup, which is suitable for the type of hepatocellular carcinoma of stagnation of qi and blood stasis. primary hepatocellular carcinoma [11]; other studies have shown that the formula of strengthening the spleen and removing blood stasis can inhibit the progression of hepatocellular carcinoma [12] In addition, Xu Fei et al. have proposed a number of traditional Chinese medicine (TCM) compound formulas, such as 'Gan Fu Le', to prevent and treat liver cancer, which provides a new approach for TCM treatment of liver cancer [13].

4. Summary

The combination of traditional Chinese medicine and modern western medicine has enriched the medical community's understanding of liver cancer and its treatment by combining traditional Chinese medicine and modern western medicine. The 'trilogy' of liver cancer, i.e., hepatitis B, cirrhosis and liver cancer, has been given enough attention. Previously, the understanding and treatment of liver cancer in both domestic and overseas medical circles were more in favor of Western medicine, but now the combination of Chinese and Western medicine may be more effective in the prevention and treatment of liver cancer. It has been found that many components in traditional Chinese medicine play an important and non-negligible role in the treatment and prevention of liver cancer. For example, the inhibitory effect of Chaihu saponin D on the proliferation of HepG2 cell line in hepatocellular carcinoma [14]; the antitumor effect of Chonglou saponin VII on hepatocellular carcinoma [15]. All of the above indicate that Chinese medicine plays an important role in the understanding and treatment of liver cancer. Therefore, the combination of Chinese and Western medicine in the understanding and treatment of primary liver cancer can improve the quality of patients' survival, reduce their pain and prolong their life, which is of great significance to the development of modern medicine.

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