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Research Article

Management of Primary Hepatic Carcinoma by Traditional Chinese Medicine

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1. Abstract

Primary hepatic carcinoma is one of the types with high incidence of cancer. It has the characteristics of hidden disease, long incubation period, rapid development and easy metastasis, and the prognosis is poor, which seriously affects the quality of life of patients. Although much progress has been made in its research, the complex mechanisms of its onset and deterioration are not fully understood. This article summarizes the diagnosis and treatment of primary liver cancer in modern medicine and traditional Chinese medicine, and provides the future prospects for the treatment of primary liver cancer from the perspective of overall and personalized Chinese medicine.

2. Introduction

Primary Hepatic Carcinoma (PHC) is characterized by high morbidity and mortality. It is the fifth most common malignant tumor in the world, ranking third in the cause of cancer death. More than 500,000 people worldwide suffer from liver cancer every year. More than half of them are in China and have shown a clear upward trend [1]. The occurrence of PHC is a multi-factor cumulative result, the cause of which is not fully understood, mainly related to the following factors: (1) Hepatitis virus: mainly Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV), especially in vivo the role of viral infection and the external environment [2]. HBV DNA and HCV RNA are the main causes of liver cancer [3-4], and HBV surface antibody (HBsAg) and surface e-antibody (HBeAg) in patients' serum are closely related to the occurrence of liver cancer [5-6]. Further deterioration of the hepatitis virus will lead to liver fibrosis and eventually to liver cancer. (2) Non-viral factors: excessive drinking causes cirrhosis and is easily degraded to liver cancer [7]; lower doses of Aflatoxin (AFT) in moldy food can cause DNA genetic information to be wrong, leading to genetic mutations that induce liver cancer; Contamination of blue-green algae toxins in unclean drinking water can also induce liver lesions to liver cancer.

Due to the special physiological characteristics of the liver, the molecular mechanism of liver cancer is complex, including: (1) activation of proto-oncogenes and inactivation of tumor suppressor genes [8]. Common proto-oncogenes mainly include N-ras and HBVx [9], the tumor suppressor genes mainly include p53, Rb, p21 and PTEN [10], and the proto-oncogene and tumor suppressor gene maintain a dynamic balance in normal physiological conditions. (2) Abnormal activation of multiple molecular signaling pathways: Abnormal activation of Wnt/β-catenin signaling pathway may promote liver cancer [11]; Hedgehog signaling pathway is not expressed in mature normal liver tissue, but in liver cancer cells Abnormally active expression [12]; Other signaling pathways, such as Notch signaling pathway, Mitogen-Activated Protein Kinase (MAPK) pathway, AKT signaling pathway and Extra Regulatory protein Kinase (ERK) signaling pathway, are important in the process of liver cancer Regulatory pathway. (3) Related protein expression: such as proliferating cell antigen and stathmin 1, 14-3-3γ is highly expressed in liver cancer cells, and liver cancer may be related to abnormal expression of certain growth factors in the body.

Traditional Chinese Medicine (TCM) usually includes a personalized diagnosis and an herbal formula using 10-20 separate herbal ingredients selected from thousands of herbal material medicines that can be used as boiled water decoctions, dried herbs Extract or as a pill [13]. The principles of diagnosis and treatment are based on the understanding of the pathology of Chinese medicine. A good TCM practice is generally considered to require a TCM syndrome model based on clinical performance, and then an individualized Chinese herbal decoction suitable for addressing

each patient-specific TCM model [14]. As treatment will change with changes in TCM patterns and clinical performance. TCM is a dynamic, highly responsive medical system that is increasingly emphasized in systems biology strategies with the use of multiple methods for optimal diagnosis and individualized treatment to account for variable responses to modern drugs.

In the TCM theory, the incidence of PHC is mostly caused by emotions, diet or toxins, resulting in visceral qi deficiency, qi ji dysfunction, and wet, phlegm, and phlegm. According to the TCM treatment of PHC, the doctors of previous generations classified the liver cancer into Chinese medicine models (phenotypes) with different characteristics according to their clinical manifestations. Some scholars [15] compiled the Chinese medicine research articles on PHC from CNKI from 1979 to 2010, showing that there are 33 types of PHC, including stagnation of liver-QI with deficiency of the spleen, qi-stagnancy and blood stasis, hepatochlic hygropyrexia, deficiency of liver-yin and kidney-yin. Types are more common, which requires different treatments for Chinese medicine. This article summarizes the theory and treatment of PHC in modern medicine and traditional Chinese medicine, and provides the future prospects for PHC treatment from the perspective of system biology.

3. Diagnosis of PHC

The incidence of PHC is high, which seriously threatens the life and health of patients. Therefore, early screening and improving the accuracy of diagnosis are of great significance to improve the survival rate of patients. Alpha fetoprotein (AFP) is a single chain serum glycoprotein. It is secreted by the yolk sac and liver in the early development of the fetus, and the blood content is very low in healthy adults. AFP has been an important clinical tool for detecting hepatocellular carcinoma since 1970s when researchers found that AFP was elevated in the serum of patients with hepatocellular carcinoma. However, in recent years, more and more PHC patients with negative AFP have been found, and a large number of missed diagnoses have been found in clinical work. People are increasingly suspicious of its sensitivity and specificity in screening and diagnosis of liver cancer. Therefore, it is of great significance for early diagnosis of PHC and guiding clinical diagnosis and treatment to put forward more meaningful serum tumor markers and adopt a variety of indicators for joint detection.

Alpha Feto Protein Variant 3 (AFP-L3) is unique to HCC cells. In recent years, AFP-L3 has been increasingly recognized as the diagnostic marker of sensitivity over AFP [16]. Abnormal prothrombin (DCP) is carboxylated in liver microsomes catalyzed by VitK-dependent glutamyl and γ-carboxylase. In recent years, it has been found that the expression of DCP is closely related to the size and number of hepatocellular carcinoma lesions and whether there is intrahepatic or extrahepatic metastasis.

Golgi transmembrane Glycoprotein 73 (GP73) levels are significantly elevated in the serum of patients with liver cancer, which is of great significance for the diagnosis of liver cancer [17]. DKK1 is a secreted inhibitory factor, which is closely related to Wnt signaling pathway. Wnt signaling plays an important role in the occurrence and development of hepatocellular carcinoma.

α-L-fucosidase (AFU) is a lysosomal acid hydrolase that is mainly involved in the catabolism of fucose-containing carbohydrate complexes, which are widely present in mammals, in liver and kidney. The highest activity in tissues. When hepatocytes become cancerous, serum AFU levels rise, making it an important marker of liver cancer. Alkaline Phosphatase (ALP) is an enzyme that is excreted through the liver to the outside of the gallbladder. It is widely distributed in tissues such as the liver, bones, intestines, kidneys, and placenta, and is distributed more in the liver and bones. Under normal conditions, ALP binds tightly to the liver cell membrane and levels in serum are low. When hepatocytes become cancerous, hepatocytes overproduce ALP. Due to poor excretion in the intrahepatic biliary tract, ALP reversely flows into the blood and causes the expression of serum ALP to increase significantly, which makes it have a certain diagnostic value for PHC.

Glypican 3 (GPC3) is a heparan sulfate glycan protein that plays an important role in the proliferation and metastasis of liver cancer cells [18]. Transforming growth factor β1 (TGF-β1) is an important regulator that strongly inhibits the proliferation of hepatocytes. Studies have shown that TGF-β1 can promote the growth of tumor cells by inhibiting the growth of paraneoplastic cells, and its serum level is negatively correlated with the occurrence of hepatocellular carcinoma. Carcinoembryonic Antigen (CEA) is an acid glycoprotein study [19], CEA is an independent predictor of hepatocellular carcinoma through epithelial-mesenchymal transition and tumor angiogenesis recurrence. Cancer antigen 125 (CA125) is derived from glycol proteins in the body cavity of embryonic development. When the body becomes cancerous, the level of CA125 is increased, which plays a crucial role in the early detection of tumors. CA199 is a non-specific tumor-associated oligosaccharide antigen, which is extremely low in healthy people. In many epithelial malignancies differentiated from endoderm cells, serum CA199 levels can be

significantly increased.

CA153 is a very specific and important specific marker for the diagnosis of breast cancer, which is closely related to human breast cancer. Serum ferritin (Fer) is a complex formed by deferoxin and iron core Fe3+. It is synthesized in the liver and has the function of storing iron and regulating iron metabolism. When the liver is damaged or cancerous, it is released into the blood in large quantities, resulting in an increase in the level of Fer in the blood. Fer is increasingly being used to diagnose liver cancer. Tumor-Specific Growth Factor (TSGF) is a polypeptide substance produced by tumor cells and closely related to the growth, invasion and metastasis of tumor cells. Therefore, the early metastasis and recurrence of tumors can be judged by measuring the level of TSGF in serum.

At present, the main joint detection methods include: joint detection of AFP, AFP-L3, DCP [20]; joint detection of AFP, DCP, GP73 [21]; joint detection of AFP, DCP, DKK1 [22]; AFP, AFU, Combined detection of ALP [23]; AFP, GPC3, TGF-β1 combined detection [24]; AFP, CEA, CA125, CA199 combined detection [25]; AFP, CEA, Fer, CA153, CA125, CA199, TSGF combination Detection [26]. These combined tests have greatly improved the diagnostic rate of primary liver cancer.

4. Treatment of PHC in Modern Medicine

Modern treatment of PHC usually includes (1) surgery, minimally invasive interventional therapy and liver transplantation; (2) radiotherapy and chemotherapy; (3) biopharmaceutical treatment; (4) cardiac adjuvant therapy.

4.1. Surgery and minimally invasive interventional techniques for the treatment of PHC

Surgical resection of PHC is currently the most widely used radical treatment. Early PHC surgery has a good prognosis and high survival rate after surgery. In the middle and late stage PHC, especially large liver cancer or multiple cancer, the rate of radical resection is low and the prognosis is poor [27]. According to the statistical analysis [28], the survival rate within 5 years after PHC resection is less than 40%, and the recurrence and metastasis rate is as high as 70%.

Interventional therapy is another important method after surgical treatment, mainly for transcatheter arterial chemoembolization (TACE), which has less effect on postoperative depression than surgery. Shi YZ [29] compared the anxiety and depression of patients with PHC after surgical resection and TACE combined with microwave ablation (PMCT). The incidence of anxiety and depressive symptoms in the PMCT group was significantly lower than that in the surgical resection group. However, TACE is a topical treatment, making it less desirable for long-term clinical efficacy of PHC, and the tumor recurrence rate is still high. Liver transplantation is currently considered to be an effective method for the treatment of end-stage liver disease with PHC, but the survival rate of liver transplant patients after liver transplantation is still not very high [30].

Radiofrequency Ablation (RFA), as an interventional therapy, can well control local tumors and is more effective in combination with partial hepatectomy. With the continuous development of science and technology, RFA has significantly expanded the surgical indications of patients with primary liver cancer and improved the survival rate of patients [31]; the study found that
[32] focused on the HCC perioperative patients, can significantly reduce Patients with anxiety and depression improve the patient's sleep quality and improve patient compliance, but the size of the tumor is a major limitation for the implementation of RFA.

4.2. Radiotherapy and chemotherapy for the treatment of PHC

Current methods of radiotherapy include: Three-Dimensional Conformal Radiotherapy (3DCRT), intensity-Modulated Radiotherapy (IMRT), and Image-Guided Radiotherapy (IGRT), such as TOMO and cyber knife. These new methods can make the energy radiation area consistent with the tumor, irradiate the tumor, and have little damage to the surrounding normal tissue. The treatment research of IMRT and IGRT has become a hot issue [33]. For patients with PHC who are both inoperable and unable to intervene in the advanced stage, it is currently considered that systemic chemotherapy is superior to general supportive therapy without obvious contraindications. Currently commonly used chemotherapy drugs are: fluorouracil and its derivatives, platinum drugs, anthraxcyclines, mitomycin, hydroxycamptothecin, gemcitabine and so on. However, patients with advanced HCC have a very poor prognosis, with a natural course of only 4-8 months. Systemic chemotherapy is ineffective and does not significantly prolong the survival time of patients [34].

4.3. Biopharmaceutical treatment of PHC

Biopharmaceutical treatment PHC has also been widely carried out, including: molecular targeted therapy, gene therapy, immunotherapy and many other aspects. Biotherapy is to enhance the body's immunity by regulating the physiological functions of the body, inhibiting the growth of tumor cells, improving the survival rate of patients and reducing the recurrence rate of tumors. However, most bio therapeutic techniques are still immature and still need to be developed [35]. Most studies [36-37] found that postoperative drug intervention has a good effect on PHC.

4.4. Postoperative neuropsychiatric treatment

As a kind of adjuvant therapy, psychotherapeutic therapy has been widely used in clinical nursing. Postoperative psychological rehabilitation of patients can significantly improve the mood and life treatment of patients, and improve the prognosis of patients. Studies have shown that, mental intervention can improve the patient's postoperative anxiety, depression and other emotions, and help patients recover [38].

5. Chinese medicine treatment PHC

The causes of PHC in traditional Chinese medicine are mostly caused by emotions, diet or toxins, resulting in viscera deficiency of vital energy, the movement imbalance of gas, and wet, blood stasis, and sputum. Liver qi stagnation is the root cause, leading to the occurrence and development of liver cancer. From the current research literature, the main pathogenesis of PHC concurrency depression can be summarized as Stagnation of liver-QI with deficiency of the spleen, Qi-stagnancy and blood stasis, Dampness and heat accumulation, Deficiency of liver-yin and kidney-yin, and when the body's positive Qi is weak, Qi, blood, phlegm, stasis, poison and dampness are linked to the viscera. Therefore, the treatment strategies of Chinese medicine include invigorating the spleen and invigorating qi and relieving the stagnation of the liver-qi activating blood circulation, removing stasis and eliminating accumulation, antipyretic, diarrhoea and detoxification; nourishing water and culvert and relieving stagnation of liver.

5.1. Treatment of primary liver cancer according to Chinese medicine mode

TCM syndrome differentiation is a method to analyze and characterize the clinical manifestations of diseases. It is a process that takes into account the geographical location, nature, occurrence and development of pathological and pathogenic factors. Once the specific syndrome of the PHC patient is determined, specific treatments will be used to correct or alleviate the patient's disease symptoms. (**Table 1**) provides a summary of the typical TCM classification of PHC and its subsequent treatment.

Table:

Prescription	Medicinal herb ingredients
Stagnation of liver-QI with deficiency of the spleen	
Xiaoyao San	Bupleuri Radix, Angelicae Sinensis Radix, Paeoniae Radix Alba, Menthae Haplocalycis Herba, Poria, Atractylodis Macrocephalae Rhizoma, Glycyrrhizae Radix Et Rhizoma
Shugan Jieyu capsule	Hyperic`i Perforati Herba, Acanthopanacis Senticosi Radix Et Rhizoma Seucaulis
Jianpi Fuzheng soup	Astragali Radix, Codonopsis Radix, Atractylodis Macrocephalae Rhizoma, Poria, Glycyrrhizae Radix Et Rhizoma,Citri Reticulatae Pericarpium, Aurantii Fructus, Pinelliae Rhizoma, Bambusae Caulis In Taenias, Coicis Semen, Ligustri Lucidi Fructus, Dendrobii Caulis
Chaihu shugan powder	Citri Reticulatae Pericarpium, Bupleuri Radix, Chuanxiong Rhizoma, Cyperi Rhizoma, Aurantii Fructus, Paeoniae Radix Alba, Glycyrrhizae Radix Et Rhizoma
Invigorating spleen and removing stasis prescription	Astragali Radix, Pseudostellariae Radix, Atractylodis Macrocephalae Rhizoma, Poria, Spraganii Rhizoma, Polygoni Cuspidati Rhizoma Et Radix, Curcumae Rhizoma, Citri Reticulatae Pericarpium Viride, Citri Reticulatae Pericarpium, Citri Sarcodactylis Fructus, Ak ebiae Caulis, Tetrastigma hemsleyanum Diels et Gilg, Hedyotis diffusa, Toad skin, Scutellariae Barbatae Herba, Pinelliae Rhizoma, Hordei Fructus Germinatus, Coicis Semen, Setariae Fructus Germinatus, Galli Gigerll Endothelium Corneum
Bupleurum and Peony Six Gentlemen Decoction	Bupleuri Radix, Paeoniaeradix Rubra, Codonopsis Radix, Atractylodis Macrocephalae Rhizoma, Poria, Pinelliae Rhizoma, Citri Reticulatae Pericarpium, Cuspidati Rhizoma Et Radix, Curcumae Radix, Germinatus, Trionycis Carapax, Scorpio, Glycyrrhizae Radix Et Rhizoma
Capsule of the heart	Curcumae Rhizoma, Edible tulip, Bruceae Fructus, Strychni Semen, Vespaenidus
Soft liver and Lidan Decoction	Bupleuri Radix, Scutellariae Radix, Pinelliae Rhizoma, Ginseng Radix Et Rhizoma Rubra, hypericum japonicum Thunb, Sedum sarmentosum Bunge, The root of red-rooted salvia, Carapax, Concha ostreae, Selfheal, Edible tulip, the bulb of fritillary, Corydalis tuber, Curcumae Longa Rhizoma, Glycyrrhizae Radix Et Rhizoma
Powder for Regulating Liver and Spleen	Persicae Semen, Carthami Flos, Angelicae Sinensis Radix, Rehmanniae Radix, Achyranthis Bidentatae Radix, Chuanxiong Rhizoma, Platycodonis Radix, Paeoniaeradix Rubra, Aurantii Fructus, Glycyrrhizae Radix Et Rhizoma, Bupleuri Radix
Bupleurum and Peony Six Gentlemen Decoction	Bupleuri Radix, Paeoniaeradix Rubra, Codonopsis Radix, Atractylodis Macrocephalae Rhizoma, Poria, Pinelliae Rhizoma, Citri Reticulatae Pericarpium, Cuspidati Rhizoma Et Radix, Curcumae Radix, Germinatus, Trionycis Carapax, Scorpio, Glycyrrhizae Radix Et Rhizom a
Capsule of the heart	Curcumae Rhizoma,Edible tulip, Bruceae Fructus, Strychni Semen, Vespaenidus
Soft liver and Lidan Decoction	Bupleuri Radix, Scutellariae Radix, Pinelliae Rhizoma, Ginseng Radix Et Rhizoma Rubra, hypericum japonicum Thunb, Sedum sarmentosum Bunge, The root of red-rooted salvia, Carapax, Concha ostreae, Selfheal, Edible tulip, the bulb of fritillary, Corydalis tuber, Curcumae Longa Rhizoma, Glycyrrhizae Radix Et Rhizoma
Powder for Regulating Liver and Spleen	Persicae Semen, Carthami Flos, Angelicae Sinensis Radix, Rehmanniae Radix, Achyranthis Bidentatae Radix, Chuanxiong Rhizoma, Platycodonis Radix, Paeoniaeradix Rubra, Aurantii Fructus, Glycyrrhizae Radix Et Rhizoma, Bupleuri Radix
Qi-stagnancy and blood stasis	
Infradiaphragmatic stasis-expelling decoction	Chuanxiong Rhizoma, Angelicae Sinensis Radix, Tree Peony Bark, Paeoniaeradix Rubra, Persicae Semen, Carthami Flos, Curcumae Radix, Cyperi Rhizoma, Bupleuri Radix, Glycyrrhizae Radix Et Rhizoma
Bai Dan Shugan recipe	Lilii Bulbus, The root of red-rooted salvia, Trichosanthis Fructus, Bupleuri Radix, Cyperi Rhizoma, Atractylodis Macrocephalae Rhizoma, Astragali Radix, Crataegi Fructus, Magnoliae Officinals Cortex, Paeoniae Radix Alba , Galli Gigerll Endothelium Corneum Angelicae Sinensis Radix, Curcumae Radix, Artemisiae Scopariae Herba, Rhei Radix Et Rhizoma
Clearing liver and removing stasis	Scutellariae Barbatae Herba, Hedyotis diffusa, Spraganii Rhizoma, Curcumae Rhizoma, Astragali Radix
Xuefu zhuyu decoction	Persicae Semen, Carthami Flos, Angelicae Sinensis Radix, Rehmanniae Radix, Achyranthis Bidentatae Radix, Chuanxiong Rhizoma, Platycodonis Radix, Paeoniaeradix Rubra, Aurantii Fructus, Glycyrrhizae Radix Et Rhizoma Bupleuri Radix
AiTongXiao Granule	Angelicae Sinensis Radix, Chuanxiong Rhizoma, Paeoniaeradix Rubra, Hedyotis diffusa, Scutellariae Barbatae Herba, Astragali Radix
Bupleurum soothing liver and peach red Siwu soup	Bupleuri Radix, Citri Reticulatae Pericarpium, Chuanxiong Rhizoma, Aurantii Fructus, Cyperi Rhizoma, Paeoniae Radix Alba, Persicae Semen, Carthami Flos Angelicae Sinensis Radix, Tree Peony Bark, Rehmanniae Radix, Astragali Radix, Pseudostellariae Radix, Atractylodis Macrocephalae Rhizoma, Poria, Glycyrrhizae Radix Et Rhizoma

Ruangan compound	Artemisiae Scopariae Herba, Polygoni Cuspidati Rhizoma Et Radix, Curcumae Radix, Citri Sarcodactylis Fructus, The root of red-rooted salvia, Paeoniaeradix Rubra, Scutellariae Barbatae Herba, Hedyotis diffusa, Phyllanthus urinaria L, Ganoderma atrum, Sophorae Ronkinensis Radix Et Rhizoma, Atractylodis Macrocephalae Rhizoma, Poria, Trionycis Carapax, Manis Squama	
Xiao Ji Huayu pill	Panacis Quinquefolii Radix, Scutellariae Barbatae Herba, Cervi Cornus Colla, Aquilariae Lignum Resinatum, Bombyxbatryticatus, Curcumae Rhizoma, pseudo-ginseng, Scorpio, Scolopendra, Dendrobii Caulis Vespaenidus	
Dampness and heat accumulation		
Pill of Eight Treasures	Bovisc Alculus, Snake gall, Saigae Tataricae Cornu, pearl, pseudo-ginseng, musk	
Artemisia Gardenia Qinggan pill	Artemisiae Annuae Herba, Gardenia jasminoides Ellis, Magnoliae Officinals Cortex, Coicis Semen, Bupleuri Radix, Corydalis Rhizoma, Scutellariae Barbatae Herba, Glycyrrhizae Radix Et Rhizoma, Codonopsis Radix	
Capsule of the heart	Curcumae Rhizoma, Edible tulip, Bruceae Fructus, Strychni Semen, Vespaenidus	
Deficiency of liver-yin and kidney-yin		
Bushen Jianpi recipe	Rehmanniae Radix Praeparata, Corni Fructus, Dioscoreae Rhizoma, Codonopsis Radix, Poria, Alismatis Rhizoma, Tree Peony Bark, Glycyrrhizae Radix Et Rhizoma	
Huazheng Sanji prescription	Scolopendra, Wall lizard, Scutellariae Barbatae Herba, Cuspidati Rhizoma Et Radix, Rehmanniae Radix, Rhei Radix Et Rhizoma, Arecae Pericarpium, Paeoniae Radix Alba, Glycyrrhizae Radix Et Rhizoma	
Yiguan Jian	Rehmanniae Radix, Ltcll Fructus, The root of straight ladybell, Ophiopogonis Radix, Angelicae Sinensis Radix, Toosendan Fructus, Anemarrhenae Rhizoma, Trionycis Carapax, Poria, Glycyrrhizae Radix Et Rhizoma	

5.1.1. Invigorating the spleen and invigorating qi and relieving the stagnation of the liver: This type is the main type of liver cancer, the clinical manifestations of two rib pain, bloating pain, general weakness, low spirit pessimism, insomnia and more dreams. The main pathogenesis is due to obstruction of liver qi, resulting in dysfunction of the spleen and stomach, leading to liver depression and spleen deficiency. Treatment method is invigorating the spleen and invigorating qi and relieving the stagnation of the liver. Chinese medicine prescriptions commonly used in clinic include: Xiaoyao San[39], Shugan Jieyu capsule [40], Jianpi Fuzheng soup[41], Chaihu shugan powder[42], Invigorating spleen and removing stasis prescription[43], Bupleurum and Peony Six Gentlemen Decoction[44], Capsule of the heart[45], Soft liver and Lidan Decoction[46], Powder for Regulating Liver and Spleen[47]. However, the clinical use of traditional Chinese medicine combined with minimally invasive surgery is now more effective than traditional Chinese medicine or surgery.

5.1.2. Qi activating blood circulation, removing stasis and eliminating accumulation: The main clinical manifestations of this type of patients are hypochondriac rib pain, dark complexion, restlessness, emotional depression, thinking and movement retardation, purple tongue, etc. The main pathogenesis is stagnation of liver qi and qi stagnation, and the gas machine is not smooth. The result was blood stasis. Treatment method is qi activating blood circulation, removing stasis and eliminating accumulation. Treatment method is invigorating the spleen and invigorating qi and relieving the stagnation of the liver. Chinese medicine prescriptions commonly used in clinic include: Infradiaphragmatic stasis-expelling decoction[48], Bai Dan Shugan recipe[49], Clearing liver and removing stasis[50], Xuefu zhuyu decoction[51], AiTongXiao Granule[52], Bupleurum soothing liver and peach red Siwu soup[53], Ruangan compound[54], Xiao Ji Huayu pill[55].

5.1.3. Antipyretic, diarrhoea and detoxification: The main clinical manifestations of this type of patients are: heavy body weight, irritability, depression, fever, thirst, insomnia, dizziness and nausea, unclean defecation, less urine and yellow and yellowish tongue. The main pathogenesis is stagnation of liver qi and qi stagnation, the internal heat of the body, internal heat injury, resulting in poor movement of body fluid, stopping in the viscera, turning to damp heat, and disturbing the disease of the viscera. Treatment method is antipyretic, diarrhoea and detoxification. Chinese medicine prescriptions commonly used in clinic include: Pill of Eight Treasures [56], Artemisia Gardenia Qinggan pill [57], Capsule of the heart [58].

5.1.4. Nourishing water and culvert and relieving stagnation of liver: The clinical manifestations of this type of patients are mainly emaciation, asthma, anorexia, thirst, oliguria, upset, insomnia, tongue red, and no moss. Its pathogenesis is liver dysfunction, stagnation of Qi and stagnation of liver qi, leading to internal heat, and then internal heat damages body fluid, resulting in Yin deficiency of liver and kidney. Treatment method is nourishing water and culvert and relieving stagnation of liver. Chinese medicine prescriptions commonly used in clinic include: Bushen Jianpi recipe [59], Huazheng Sanji prescription [60], Yiguan Jian [61].

5.2. Experimental study on the treatment of primary liver cancer with Chinese medicine monomer

5.2.1. Inhibit the proliferation of liver cancer cells: Normal cell proliferation is regulated by the body, and the formation of tumors is an infinitely proliferating process in which cells are not controlled. Inhibition of hepatocarcinoma cell proliferation assay is a basic study of the mechanism of action of anti-hepatocarcinoma drugs. Traditional Chinese medicine can inhibit the growth and proliferation of abnormal hepatocytes by regulating the expression of abnormal genes and the level of cytokines. Studies have found that Chinese medicine monomers that can inhibit the proliferation of liver cancer cells include: Curcumin [62], Dihydroartemisinin [63], and Diterpenoids in JD. [64].

5.2.2. Inducing apoptosis of liver cancer cells: Apoptosis is an intrinsic programmed suicide mechanism in which cells are controlled to disintegrate into apoptotic bodies, which are

then recognized and phagocytosed by phagocytic cells, which is an important mechanism for maintaining a constant number of organs and a stable inner loop. It plays an important role in the process of tumor development and elimination. Studies have found that Chinese herbal medicines that can induce apoptosis of liver cancer cells include: Scutellaria extract β-elemene [65], Tanshinone IIA [66], Piperine [67], and Icariin [68].

5.2.3. Anti-hepatocarcinoma invasion and metastasis: Primary tumor invasion and metastasis are the basic biological characteristics of malignant tumors, and are the lethal factors of most tumor patients in clinical practice. Liver cancer is easy to metastasize and easy to relapse, and the therapeutic effect is difficult to fundamentally improve. In recent years, Chinese medicine has made great progress in this research. Studies have found that Chinese herbal medicines with anti-hepatocarcinoma invasion and metastasis include: Total saponins of paeonia [69] and Ginsenoside Rg3 [70].

5.2.4. Affecting telomerase activity: Telomerase is a ribonucleo protein composed of RNA and protein and belongs to a reverse transcriptase. Normal somatic cells hardly express telomerase activity, while malignant tumor cells have telomerase activity as high as 80-90%.Telomerase has now become a specific marker for tumors, and telomerase as a "target" is a new strategy for the treatment of tumors. Studies have found that the water flavonoid DMC [71] can affect the activity of telomerase.

5.2.5. Regulating cell signal transduction: Obstacles or abnormalities in the signal transduction process lead to a series of biological behavior abnormalities such as cell growth, proliferation, differentiation, metabolism, and apoptosis, causing various diseases and even tumors. Studying tumor cell signal transduction, you can understand the mechanism of tumor formation and development, using bioengineering techniques and means to target a specific molecular target or signal transduction pathway, block the signal transduction pathway of tumor growth, so inhibit tumor the occurrence and development. It was found that Vitexin VB-1[72] down-regulates the phosphorylation levels of ERK and FoxO3a, thus inhibiting the proliferation of liver cancer cells. The traditional Chinese medicine monomer Berberine [73] may inhibit tumor cell proliferation by inhibiting the activity of tumor invasion-associated signal VEGF/PLCr1.

6. Summary and outlook

Early screening of PHC and improved diagnostic accuracy are important for improving patient survival. At present, the main diagnostic and diagnostic index for liver cancer is alpha-fetoprotein, but the accuracy of single diagnosis is not high. It is considered that more meaningful serum tumor markers are proposed, and combined detection of multiple indicators is used for early diagnosis of primary liver cancer. Diagnosis and treatment are of great significance. At present, there are various treatments for primary liver cancer. Due to the complex symptoms and symptom characteristics of such patients, such as the use of a single treatment, it is difficult to achieve the desired effect, combined therapy is currently a more common method. At present, traditional Chinese medicine combined with modern medical means is ideal for the treatment of primary liver cancer, and can alleviate the suffering of patients, relieve their anxiety and improve the quality of life. The research on the therapeutic effect of traditional Chinese medicine on liver cancer also provides a new research direction for the pathogenesis and treatment of liver cancer.

The high incidence of PHC is difficult to treat. In addition to further research on its pathogenesis, it is more important to continuously study the most effective methods for treating PHC, to bring patients treatment hope and to reduce the economic burden of treatment as much as possible. . It is necessary to conduct in-depth research on the basis of giving full play to the advantages of traditional Chinese medicine and rationally combining other treatment methods. In addition to the symptomatic treatment of Western medicine, improving the quality of life is regarded as the primary task in the treatment of advanced liver cancer. The combination of traditional Chinese and Western medicine shows us the main direction and provides a useful reference for further progress.

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