Clinical Characteristics and Survival Analysis of Two Groups of Patients with Colon Cancer with Different Social Support

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Abstract: Colon cancer is the third largest cancer in the world at present[1], which is very common in developed countries, and the incidence rate in developing countries is also increasing year by year. The latest epidemiological report shows that 376000 new colon cancer patients and 191000 deaths have occurred in China. In the past ten years, our understanding of cancer has made new progress [2]. However, in the current research, there has been no progress in the research on the occurrence, development and prevention of colon cancer related to physical and mental diseases. In the latest research, there are studies on the influence of psychological factors in the molecular field from the perspective of psychology, which is of great help to the research on the occurrence, development and prognosis of colon cancer. In order to explore the influence of social psychological factors on the occurrence, development and prognosis of colon cancer, the experiment collected clinical data, social support scores, and followed up disease-free survival period and total survival period of colon cancer patients.

Keywords: Colon Cancer; Psychological Factor

1. Introduction

In order to explore the impact of psychosocial factors on the occurrence, development and prognosis of colon cancer, this experiment collected the clinical data and social support scores of colon cancer patients, followed up the disease-free survival period and total survival period of colon cancer, and grouped them according to the quantitative indicators of patients' social support, compared the clinical characteristics and prognosis of colon cancer patients with different social support, and discussed the role of psychosocial factors in the occurrence and prognosis of colon cancer, To provide new ideas for clinical prevention and treatment of colon cancer.

2. Research objects and methods

2.1 Acquisition of clinical data

This study collected the case data of patients who received laparoscopic colorectal cancer radical surgery in the First Affiliated Hospital of China Medical University from October 2018 to March 2019 in a total of six months. With the consent of the patient, the patient was instructed to complete the social support assessment scale according to their own real situation, record the social support assessment score of the patient, collect and record the patient's age, first symptom and other case information, and record the patient's tumor diameter, differentiation degree, stage and other clinical data indicators through preoperative CT examination and postoperative pathological data. Finally, according to the interpretation method of the social support scale [3], groups are divided by 30 points. The social support rating of low groups is ≤ 30, and that of high

groups is ＞ 30.

2.2 Inclusion and exclusion criteria

2.2.1 Inclusion criteria

1. Laparoscopic radical resection of colon cancer was performed without palliative resection. Patients with liver metastasis were those who could undergo radiofrequency ablation or surgical resection; 2. Colon cancer was confirmed by pathology after operation, and the number of lymph nodes was effective; 3. The pathological type was adenocarcinoma; 4. The patients agreed to fill in the social support rating scale.

2.2.2 Exclusion criteria

1. Patients with familial adenomatous polyposis and hereditary nonpolyposis colorectal cancer were excluded; 2. Exclude patients with complications who underwent emergency surgery, such as colon cancer with perforation and bleeding; 3. Patients with stage IV colon cancer who had peritoneal metastasis and could not be treated by radical surgery were excluded; 4. Exclude patients who do not agree to fill in the social support rating scale; Patients with malignant tumors from other sources were excluded; 6 Exclude patients with problems or untruthfulness in filling in the social support scale; 7 Exclude patients whose clinical data cannot be collected or are incomplete.

2.3 Follow-up

Follow up will be started from the discharge of the last patient in the group until the end of the follow-up in December 2020. The follow-up method is mainly telephone follow-up, including outpatient or readmission, etc. Follow up the survival of the patients, and record the disease-free survival and total survival of the patients in the group. The disease-free survival time is from the discharge of the patient to the discovery of recurrence of colon cancer, and the total survival time is from the discharge of the patient to the death of the patient.

2.4 Data analysis and statistics

This study uses SPSS25.0 statistical software to analyze relevant data [4]. The number of cases and composition ratio were used for the description of classified data, chi square test was used for the comparison of components, K-M test was used for the comparison of ordinal classified data, wilcoxon rank sum test was used for the comparison of pairs, and Kaplan Meier method was used to draw the survival curves of progression free survival period and total survival period. $P < 0.05$ means the difference is statistically significant.

3. Result

After retrospective analysis and inclusion exclusion criteria, 177 colon cancer patients were finally included in the group out of the initial 200 colon cancer patients. The following is the correlation results between social support and clinical characteristics of colon cancer patients who were divided into two groups according to social support. The disease-free survival time and total survival time of the two groups of colon cancer patients were obtained through follow-up, and the survival curve was drawn with Kaplan Meier method to compare the prognosis of patients with different social support, so as to analyze the impact of social support on the prognosis of colon cancer patients.

3.1 Gender comparison between the two groups

Of the 177 patients enrolled, 78 were colon cancer patients with low social support, and 99 were colon cancer patients with high social support. In the 78 cases of colon cancer with low social support, there were 43 males and 35 females, with a male to female ratio of 1.22: l. There were 99 cases of colon cancer with high social support, including 69 males and 30 females. The male to female ratio was 2.3:1. Among the patients enrolled in this experiment, the majority of male patients had high social support, with a proportion of 1.60:1, while the proportion of female patients with colon cancer with low social support was relatively high, with a statistically significant difference ($p<0.05$). See Table 1

Table 1 Gender comparison of high and low social support

Gender	total	Low social support	High social support	χ2	P
Male	112	43（38.39%）	69（61.61%）	5.815	0.016
female	65	35（53.85%）	30（46.15%）		
total	177	78	99		

3.2 Age comparison between the two groups

The following data are obtained by grouping the two groups of patients according to their age, as shown in Table 2. According to the data in Table 2, the median age of patients in the group was 60 years old, slightly higher than the national level. Among them, the patients aged 50-59 years were the most, up to 70, accounting for 39.55%. Most of them are 60 to 69 years old, accounting for 37.29%. From the perspective of high and low social support groups, the median age of the high social support group is 55 years old, and the 50 to 59 year old group is the majority, accounting for 47.47%. The median age of patients in the low social support group was 65 years old, and the majority of patients in the 60-69 year old group reached 52.56. There was significant difference in age distribution between the two groups, which was statistically significant by chi square test ($p<0.05$).

Table 2 Age distribution of high and low social support

Age group	Low social support	High social support	χ2	P
≤40	1（1.28%）	3（3.03%）		
40-49	7（8.97%）	15（15.15%）		
50-59	23（29.49%）	47（47.47%）	9.628	0.047
60-69	41（52.56%）	25（25.25%）		
≥70	6（7.69%）	9（9.09%）		

3.3 Comparison of main clinical initial symptoms between two groups

According to the clinical data recorded by the patients at the hospital, the patients with colon cancer with different social support were grouped according to the first symptom, and Table 3 was obtained. It can be seen from Table 3 that the first symptoms of patients with different levels of social support are obviously different. In patients with colon cancer with low social support, the first symptoms were mainly abdominal pain, abdominal mass and intestinal obstruction, while in patients with colon cancer with high social support, the first symptoms were mainly bloody stool and change of bowel habits. Statistical analysis showed that the distribution of the first symptoms of colon cancer patients with different social support had significant differences ($p<0.05$).

Table 3 Comparison of clinical initial symptoms with high and low social support

First symptoms	Anorexia	Weig ht loss	Abdominal pain, distension and diarrhea	Altered bowel habit	Hematochezi a	Abdominal mass	intestinal obstruction
Low social support （78）	20	31	65	15	35	60	26
High social support(99)	26	45	28	73	70	13	13

3.4 Comparison of histopathological characteristics between two groups

According to the pathological characteristics of patients collected by preoperative CT examination and postoperative pathology, the differences between patients with different social support are compared. The results are shown in Table 4. Table 4 shows that there is a significant difference in tumor volume between the two groups. The tumor volume of patients with low social support is generally large, while that of patients with colon cancer with high social support is generally small. The majority of patients with colon cancer with low social support have large tumors. The difference between them was statistically significant (P<0.05). At the same time, it can be found that the distribution of patients with different social support in the general classification is also significantly different. The patients with low social support of colon cancer are mostly ulcerative and protuberant, and the number of ulcerative and protuberant types is similar. The patients with high social support were mostly bulging. In terms of the degree of tumor differentiation, there is also a significant difference between the two groups of patients. Most patients with low social support for colon cancer are poorly differentiated, while most patients with high social support are highly differentiated. The difference was statistically significant (p<0.05).

Table 4 Comparison of clinicopathological characteristics of colon cancer patients with high and low social support

Pathological characteristics		Low social support（78）	High social support（99）	χ2	P
volume	＜5cm	27（34.62%）	57（57.57%）	5.724	0.017
	≥5cm	51（65.38%）	42（42.42%）		
gross type	Ulcerative type	41（52.56%）	27（27.27%）	8.972	0.011
	Protuberant type	30（38.46%）	60（60.60%）		
	Infiltrating type	7（8.97%）	12（12.12%）		
Differentiation degree	Low differentiation	63（80.77%）	28（28.28%）	6.522	0.038
	Highly differentiated	15（19.23%）	71（71.71%）		

3.5 Comparison of tumor metastasis between two groups

By comparing and analyzing the data of lymph metastasis and distant metastasis of colon cancer patients with different social support in two groups, the results are shown in Table 5. It can be seen from the comparison in Table 5 that the proportion of lymph metastasis in colon cancer patients with low social support is more (58.97%), with a statistically

significant difference (P<0.05). However, there was no significant difference in the distribution of patients with distant metastasis between the two groups.

Table 5 Comparison of tumor metastasis of colon cancer patients with high and low social support

Transfers		Low social support（78）	High social support（99）	X^2	P
Lymph node metastasis	No lymph node metastasis	32（41.02%）	69（69.69%）	11.424	0.001
	Lymph node metastasis	46（58.97%）	30（30.30%）		
Transfer	No transfer	63（80.77%）	89（89.89%）	3.671	0.299
	Liver metastasis	15（19.23%）	10（10.10%）		

3.6 TNM staging of two groups of patients

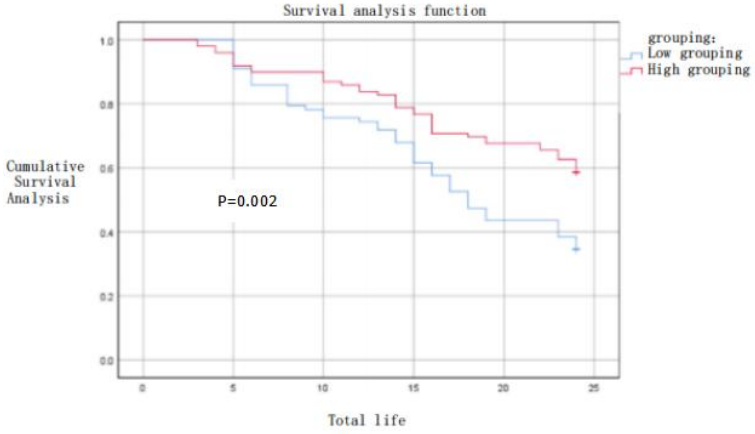
According to the collected patient data, and according to the 2011 AJCC TNM staging standard for malignant tumors (the 8th edition), patients with colon cancer with different social support were divided into TNM staging. The TNM pathological staging of patients with colon cancer with high social support and low social support was compared, as shown in Table 6. It can be seen from Table 6 that there was a difference in pathological stages between the two groups at the time of diagnosis, P<0.05, which was statistically significant.

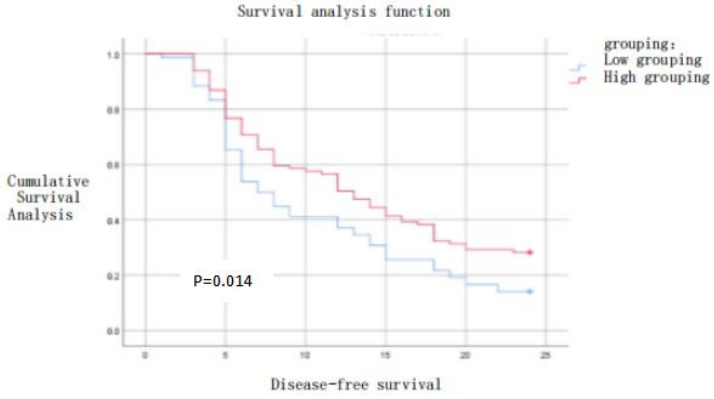
Table 6 Comparison of TNM Stages of Colon Cancer Patients with High and Low Social Support

TNM		LOW SOCIAL SUPPORT（78）	HIGH SOCIAL SUPPORT（99）	X^2	P
TNM staging	I	7（8.97%）	26（26.26%）	11.893	0.008
	II	32（41.03%）	44（44.44%）		
	III	20（25.64%）	19（19.19%）		
	IV	19（24.36%）	10（10.10%）		

3.7 Comparison of survival rates between the two groups

The study began in October 2018, and the last patient was discharged from the hospital on April 2, 2019 to the end of the study on December 31, 2020. A total of 92 patients survived and 85 died. The survival rate of patients with low social support rate was 38.46%, and the survival rate of patients with high social support rate was 62.62%. The survival rate of patients with high social support was significantly higher than that of patients with low social support, P<0.05, with statistical significance. The total survival analysis curve is Figure 1, and the disease-free survival analysis curve of patients in high and low groups is Figure 2.





4. Discussion

The occurrence, development and prognosis of colon cancer involve a complex evolutionary process involving multiple factors. This study is to explore the role of social psychological factors in the occurrence, development and prognosis of colon cancer. It is a cross study of clinical surgery and social psychology to explore the possible findings of colon cancer in the field of physical and mental diseases [5].

In the current researc,, the mechanism of social psychological factors in the occurrence and development of cancer is described as follows: 1. Personality factors affect the occurrence, development and prognosis of cancer. Depressive and negative personality traits have a negative impact on human health and disease recovery, and keeping healthy and positive personality traits has a positive effect on physical health. 2. Influence the occurrence and development of cancer through adverse psychological factors directly caused by life events. Life events refer to changes in social life that people encounter in their lives. Bad life events will produce bad psychological state, affect people's immunity, and thus affect people's health. 3. Social support. Social support refers to the sum of material and spiritual help that people can get from society in social life. It is the main way for people to get love and sense of value from society in social life. Relevant research shows that low social support or low utilization of social support is also related to low survival rate of cancer patients. A one-year prospective study showed that immature defense mechanisms could lead to sleep disorders in colorectal cancer patients, and irregular sleep might lead to poor prognosis in cancer patients.

In many survival analysis studies of colon cancer, the 2-year survival rate of colon cancer patients is generally about 60%. In this study, from the discharge of the last patient to the end of the study on December 31, 2020, a total of 92 patients

survived and 85 died. The total two-year survival rate was 51.98%, the survival rate of patients with low social support rate was 38.46%, and the survival rate of patients with high social support rate was 62.62%. The survival rate was lower than that of most studies. This may be due to the selection bias caused by the single center, small sample and retrospective study. However, this study found that patients with colon cancer with high social support had higher disease-free survival and total survival than patients with colon cancer with low social support, and the difference was statistically significant. In this study, we found that social support was correlated with multiple clinical indicators. Patients with high social support generally had smaller tumors, earlier staging, and fewer metastases, which may be the main reason why patients with high social support had better conditions in disease-free survival and overall survival. Secondly, in the field of psychology, social support also plays a positive role in the postoperative recovery of cancer [6]. In a word, to improve social support, strengthen psychological counseling and education for colon cancer patients can effectively prevent metastasis and recurrence after radical surgery, prolong the survival period of patients, and improve the quality of life of patients after surgery.

To sum up, social support is related to many clinical features[7] and plays a positive role in the prognosis of colon cancer patients.

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