Effect of family support on quality of postoperative life in patients with digestive cancer

Mei-Mei Wang[1#], Dong-Mei Chen[2#], Ou Zhang[3#], Yan He[1], Xue-Lei Zhou[4], Yi Cai[5], Wan-Qin Deng[3]

[1]Sichuan College of Traditional Chinese Medicine, Mianyang, China; [2]Department of Nephrology, [3]Department of Urology Surgery, [4]Gastroenterology Department, [5]Oncology Department, Hospital of Chengdu University of Traditional Chinese Medicine, Chengdu, China

Contributions: (I) Conception and design: MM Wang, WQ Deng; (II) Administrative support: DM Chen, O Zhang; (III) Provision of study materials or patients: MM Wang, DM Chen, XL Zhou, Y Cai; (IV) Collection and assembly of data: All authors; (V) Data analysis and interpretation: MM Wang, O Zhang, Y He, XL Zhou, Y Cai, WQ Deng; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

[#]These authors contributed equally to this work.

Correspondence to: Wan-Qin Deng. Hospital of Chengdu University of Traditional Chinese Medicine, No. 39 Shi-er-qiao Road, Chengdu 610072, China. Email: dengwanqin0219@163.com.

Background: Digestive tumors are malignant tumors of epithelial origin with high rates of morbidity and mortality worldwide. At present, surgery is the main treatment for patients with digestive tumors. In this study, we conducted a survey of patients with digestive cancers to explore the influence of family support on postoperative quality of life, with the aim of providing a basis of reference for further improvement of the quality of life of such patients.

Methods: A total of 82 patients with digestive cancer who underwent surgery in Hospital of Chengdu University of Traditional Chinese Medicine between October, 2018 and April, 2019 were selected to take part. The self-made questionnaire, the European Cancer Research and Treatment Organization's Core Quality of Life Questionnaire for Cancer Patients, and the Family Support Scale were used to investigate the patients, and the collected data were statistically analyzed.

Results: The family support scores of the 82 enrolled patients ranged from 5 to 15 points, with an average score of (8.86±2.47) points; 60 cases (73.17%) scored ≥10 points and 12 cases (26.83%) scored <10 points. Patients who were married, aged under 30 years old, or employed as civil servants had higher family support scores than other patients (P<0.05). The scores for physical function, emotional function, and overall health status/quality of life in patients who had a high family support score were higher than those in patients who had a low family support score (P<0.05). According to the logistic regression model, Patients with higher age, getting married, with education level of bachelor degree or above, occupation as farmer and with other digestive tract tumor got higher family support score. (P<0.05).

Conclusions: Good family support can effectively improve quality of postoperative life for patients with digestive cancer. Education, age, occupation and marriage are all independent factors that affect family support.

Keywords: Digestive cancer; quality of life; family support; influence factor

Introduction

Digestive tumors are malignant tumors of epithelial origin, which carry high rates of morbidity and mortality worldwide. In China, of all malignant tumors, gastric cancer, esophageal cancer, and colorectal cancer rank third, fifth, and sixth, respectively, in terms of incidence, and have become major health threats (1). Currently, surgery is still the main treatment for digestive cancer patients. After surgery, in addition to pain and discomfort related to the

disease, patients' quality of life can also be severely affected by adverse reactions, such as nausea, vomiting, and loss of appetite (2). Therefore, patients often rely heavily on their relatives for Social support during the postoperative period. Spouses, as the most important caregivers and social supporters of cancer patients, often face obvious psychological stress, which is significantly related to the social support. It not only affects their own physical and mental health and quality of life, but also directly affects the mood, treatment and rehabilitation of cancer patients (3). Family support is the most basic and important component of social support. Some studies have pointed out that family support is a major source of social support for cancer patients, and the level of family support is significantly related to the patient's physical and mental health and the rehabilitation process (4,5). Currently, there are few studies on family support in patients with digestive tract cancer, and most of them are focus on the aspect of family emotional support or nutritional support, which is not systematic enough. In addition, for patients with gastric cancer, postoperative quality of life is as important as the length of survival. Therefore, in this study, we investigated the postoperative status of family support and the quality of life of patients with digestive cancers, and analyzed the factors that affect family support, in order to provide a reference for improving the quality of life for patients with digestive cancer. We present the following article in accordance with the SURGE reporting checklist (available at http://dx.doi.org/10.21037/apm-20-1129).

Methods

Objects

A total of 82 patients with digestive cancers who received surgery at the Hospital of Chengdu University of Traditional Chinese Medicine between October, 2018 and April, 2019 were investigated. The inclusion criteria for patients were as follows: (I) aged ≥18 years old; (II) meeting the relevant diagnostic criteria for digestive cancer, including esophageal, gastric, liver, and colorectal cancers (6); (III) self-awareness of their disease; and (IV) K-Score (KPS score) of >60 (7). The exclusion criteria were as follows: (I) suffering from malignant tumors other than digestive cancer; (II) suffering from primary mental or psychological disorders; or (III) unable to fill out the questionnaires or clearly express their wishes. Informed consent was obtained from all patients and their families.

All procedures performed in this study involving human participants were in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by Chengdu University of Traditional Chinese Medicine (No. SYXK-20190156).

Survey contents

General condition questionnaires, the European Cancer Research and Treatment Organization's Core Quality of Life Questionnaire for Cancer Patients (EORTC QLQ-C30), and the Hu Family Support Scale were used to investigate the patients' general condition, postoperative quality of life, and family support. The self-made general questionnaire covered gender, age, type of disease, occupation, education, and marital status.

The EORTC QLQ-C30 questionnaire comprises five functional areas: physical function, role function, emotional function, cognitive function and social function; 3 symptom areas (fatigue, pain and nausea); One overall health status/ quality of life and 6 single items (each as an area). There were 30 items included, of which the answers to items 29 and 30 were provided with 7 levels, each with a score of 1 to 7 points, and the answers to the remaining items were provided with 4 levels, with a score of 1 to 4 points. The higher the score in the functional area and the overall health area, the higher the functional status and quality of life. In this study, the functional field and the overall health field were used as the main basis to evaluate the quality of life of patients with gastrointestinal tumor.

The Family Support Questionnaire comprises 15 items, which are scored on a 0–1 scale. The answer of "yes" scores 1 point, while "no" scores 0, up to a total of 15 points. The higher the score, the higher the level of family support (8). The scores of family support levels are divided based on a cutoff value of 10 points, with a score ≥10 indicating a high level of family support, and <10 indicating low family support (9). All questionnaires and scales are of good validity and credibility.

Survey methods

Prior to discharge from the hospital after surgery, the patients were informed of the purpose and significance of the survey by trained nurses face-to-face. After providing informed consent, patients who met the inclusion criteria were invited to fill out the questionnaire by themselves or with assistance. The questionnaires were distributed and

2074

Wang et al. Effect of family support on quality of postoperative life

collected on the spot, and family members were asked to avoid the questionnaire process while the questionnaire was completed. A total of 82 questionnaires were distributed and 82 valid questionnaires were recovered, with an effective recovery rate of 100.00%.

Statistical analysis

Data entry was conducted using Epidata3.1 software, and all analyses were performed using SPSS 18.0 statistical software (IBM, USA). Measurement data were expressed as mean ± standard deviation ($\overline{x} \pm s$). Comparisons between groups were performed using the independent samples t-test or analysis of variance. Logistic multivariate analysis was carried out to analyze related factors affecting family support. Results with a P value of <0.05 were considered to be statistically significant.

Results

General condition

Among the 82 patients with digestive tumors surveyed, 50 (60.98%) patients were male, and 32 (39.02%) patients were female. There were 35 cases of colon cancer (42.68%), 22 cases of gastric cancer (26.83%), 11 cases of liver cancer (13.41%), 8 cases of esophageal cancer (9.76%), and 6 cases of other digestive cancers (7.32%). Of the patients, 38 (46.34%) were educated college degree level or below, and 44 cases (53.66%) were educated to bachelor's degree level or above.

Scale score of family status

The family support scale scores of the patients ranged from 5 to 15 points, with an average score of 8.86±2.47 points; 60 cases (73.17%) scored ≥10 points, and 22l cases (26.83%) scored <10 points. Single-factor analysis showed that the family support scores of patients with gastrointestinal cancer were significantly different from different age, marriage, education level and occupation (P<0.05), and there was no effect of gender and cancer type on the family support scores of patients with gastrointestinal cancer (P<0.05, *Table 1*).

Quality of life and function scores

The average scores of the 82 patients for physical, role, emotional, cognitive, and social function were (13.28±5.42)

points, (6.78±2.21) points, (11.94±3.68) points, (6.04±1.27) points, (6.93±2.16) points, respectively, and the overall health status/quality of life score was (10.35±2.27) points. The physical emotional function scores, and the overall health status/quality of life score was significantly higher in patients with a high level of family support than in those with a low level of family support (P<0.05). There was no statistical difference in the scores for role, cognition, or social function between patients with high and low levels of family support (P>0.05, *Table 2*).

Multivariate analysis of factors affecting family support in patients with digestive tumors

Setting high score of family support =1, low score of family support =0, the significant variables in the single factor analysis were included in the Logistic regression analysis. The result showed that patients with higher age, getting married, with an education level of the bachelor degree or above, the occupation of farmers and patients with other gastrointestinal cancer got higher family support score (P<0.05, *Table 3*).

Discussion

Gastrointestinal malignant tumors pose a serious threat to patients because of their high rates of morbidity and mortality (10). In contrast with cancer patients in other countries, who are generally nursed in specialized institutions, cancer patients in China mainly depend on their families for care (11). Patients with digestive cancers are often already at the middle and advanced stages of their disease at the time of diagnosis and often undergo chemotherapy after extended radical operation, which can cause severe discomfort.

Family support is defined as the care and assistance provided to an individual by their relatives when they cannot take care of themselves due to illness, disability, or other reasons. Studies have found that the level of family support is closely related to the patient's psychological endurance, pain, and self-management. Previous surveys have shown that cancer patients generally receive high levels of family support. A survey of 50 chemotherapy patients by Chen *et al.* showed that 72% had a self-rating family support scale score ≥10 points (12). Hong surveyed 290 patients undergoing postoperative stability reconstruction with spinal tumors and found that the average family support score was (11.35±3.11) points, and 75.17% of patients had

Table 1 Family support of 82 patients with digestive tumors ($\bar{\chi} \pm s$)

Factors	No.	Family support score	t/F	P
Gender			0.385	0.701
Male	50	11.26±2.04		
Female	32	11.08±2.10		
Age (years)			10.55	<0.001
20–30	6	14.86±5.02		
31–50	28	13.96±4.18		
≥51	48	10.98±2.86		
Cancer type			0.13	0.941
Liver cancer	11	10.58±3.18		
Gastric cancer	22	10.48±3.10		
Colon cancer	35	10.02±2.98		
Esophageal cancer	8	10.54±2.68		
Other	6	10.31±2.45		
Education level			2.126	0.037
College degree or below	38	12.24±5.64		
Bachelor's degree or above	44	14.96±5.84		
Occupation			15.57	<0.001
Labor worker	12	6.36±2.08		
Peasant	36	6.28±2.16		
Other*	34	9.26±2.20		
Marriage			2.323	0.023
Married	64	15.02±5.58		
Other#	18	11.84±3.18		

*, including individual business owners, civil servants, and technicians; #, including unmarried, divorced, and widowed.

a high level of family support (13). Consistent with these findings, the results of this survey showed that 73.17% of patients with digestive cancer considered themselves to have a high level of family support, which can not only help patients to overcome various difficulties during treatment, but can also promote the post-treatment rehabilitation process.

The life quality evaluation of a patient's physical, psychological, social relationship, and environmental fields is a multidimensional concept that can comprehensively assess the overall health of the patient. Postoperative chemotherapy for digestive cancers often causes a variety of discomforts, psychological stress, negative emotions,

and complications associated with disease diagnosis and treatment that gradually occur after surgery and affect the patient's quality of life, often severely. Previous studies have confirmed that family support is closely related to patients' quality of life. Shi pointed out that family support was positively correlated with the overall quality of life scores in patients with chronic myelogenous leukemia in the physical, psychological, social relations, and environmental fields (14). Moreover, Liu surveyed 142 patients with cervical cancer after surgery and found that the core questionnaire life quality scores of cancer patients with a high level of family support were higher than those with lower levels of family support (15). The results of this study showed that patients

2076

Wang et al. Effect of family support on quality of postoperative life

Table 2 Quality of life scores of patients with different family support scores ($\bar{\chi} \pm$s)

Quality of life	Family support		t	P
	Low (n=22)	High (n=60)		
Physical function	11.26±4.14	15.28±5.72	3.501	0.001
Role function	6.36±2.04	7.02±2.12	1.285	0.203
Emotional function	10.08±2.86	12.84±3.68	3.721	<0.001
Cognitive function	5.28±1.84	6.12±1.98	1.795	0.077
Social function	6.74±2.16	7.18±2.26	0.790	0.432
Overall health status/quality of life	7.52±2.04	11.26±2.86	5.622	<0.001

Table 3 Single/multivariate analysis of factors affecting family support in patients with digestive cancers

Factors	Variable assignment	Single-factor analysis OR (95% CI)	χ^2	P	Multiple-factor analysis OR (95% CI)
Age (years)	Continuous variable	1.99 (1.34–2.82)	11.18	0.001	1.87 (1.03–3.37)
Gender	Male =1, female =0	1.09 (0.97–1.39)	0.24	0.571	1.21 (0.89–1.41)
Marriage	Married =1, other =0	1.70 (1.19–3.02)	10.05	0.002	1.83 (1.37–3.20)
Education level	College degree or below =0, Bachelor's degree or above =1	1.87 (1.36–3.14)	5.74	0.017	1.75 (1.21–2.84)
Occupation	Dummy variable form	1.65 (1.27–2.85)	4.92	0.026	
Worker					1.00
Peasant					1.80 (1.34–2.99)
Other					1.69 (1.25–2.27)

with high levels of family support scored significantly higher for physical function, emotional function, and overall health status/quality of life than those with low levels of family support, which suggests that a high level of family support is also an important factor in improving the quality of life of patients with digestive cancers. Some studies have reported that the active support of families does not only help patients to monitor their disease, adjust dietary habits, and perform functional exercise, but it can also reduce disease and symptom-related psychological pressure through positive psychological counseling and increase the confidence of patients in overcoming the disease. Consequently, the quality of the patient's rehabilitation is improved, which lays the foundation for their return to family life and society for a shouter amount of time (16). Therefore, creating an environment for good family support is an important part of managing the future rehabilitation of patients after tumor surgery.

There are many possible factors that influence the level of family support. Xu *et al.* analyzed the family status of inpatients with liver cancer and its influencing factors, pointing out that the level of family support during treatment is related to the education level of the caregiver, monthly family income, and nursing time. In this study, age, marriage, occupation, and education level were independent factors affecting family support; that is, patients with higher levels of family support mainly came from families with: (I) higher education levels. Those with higher levels of education can not only take the initiative to learn about the disease, but also have a better understanding of the related knowledge. They are also more likely to be able to communicate with the patient fully and urge the patient to complete the follow-up treatment. (II) Married family. China is a country that attaches great importance to family relationships. Support from family members is the main spiritual pillar of cancer patients. Close family relationships

allow patients to feel the love and support of their families at any time. (III) Higher or stable incomes. Individuals who are business owners, civil servants, and technicians, for example, are more likely to have the financial resources to support the physical and mental needs of patients with digestive cancer and alleviate patients' concerns about high costs, therefore helping to improve sociopsychological status of patients with gastrointestinal cancer and reducing their stress response. (IV) Younger family members (under 30 years old). Older family members can have limited knowledge, understanding and acceptance of the disease, as well as lower physical fitness, and they often have poor financial ability. Therefore, patients with younger family members may be able to provide a higher level of postoperative support to patients with digestive cancer.

In summary, among patients with digestive cancer, the level of family support is closely related to the patient's quality of life. And education, age, occupation, and marital status were the main factors affecting the family support. In the future, the health education needs to be further strengthened for the family members with low education level, low age, and the families of caregivers of patients who are not married in the clinical and community setting, to raise the level of family support for patients and thereby improve their quality of postoperative life. Through this study, the relationship between the quality of life and social support of patients with gastrointestinal cancer is clarified, and some factors affecting the level of family support are obtained, which provides direction for targeted intervention in the future. However, there are still some limitations such as small sample number and insufficient excavation of influencing factors, which need to be further studied in the future.

Acknowledgments

Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at http://dx.doi.org/10.21037/apm-20-1129). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Informed consent was obtained from all patients and their families. All procedures performed in this study involving human participants were in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by Chengdu University of Traditional Chinese Medicine (No. SYXK-20190156).

References

1. Kong L, Peng J, Li J, et al. Prolonged surveillance of colorectal cancer patients after curative surgeries beyond five years of follow-up. Ann Transl Med 2019;7:608.
2. Zou X. Effects of comprehensive nursing intervention on patients with digestive tract tumor. Chinese Journal of Cancer Prevention and Treatment 2016;23:324-6.
3. A survey of anxiety and social support status of spouse of breast cancer patients and interventions for it. Chinese Nursing Research 2009;23:1380-1.
4. Wu X, Zhang X, Wang Q, et al. The relationship of resilience and family function, hope of gastric cancer before chemotherapy: self-efficacy as a mediator. Modern Preventive Medicine 2018;45:1822-6.
5. Chen H, Liu Y, Yin W. Status and related factors of family-dependence in patients with tumor in China. Chinese Journal of Evidence-based Medicine 2011;11:899-902.
6. Ojima T, Nakamura M, Nakamori M, et al. Robotic radical lymphadenectomy without touching the pancreas during gastrectomy for gastric cancer. Medicine (Baltimore) 2019;98:e15091.
7. Niu L. Effect of family-centered nursing intervention on

quality of life of digestive malignant tumors. Guide of China Medicine 2016;14:228.

8. Jin N, Ma J, Gao C, et al. Effect of family and social support on quality of life in patients with esophageal carcinoma. Chinese Journal of Clinical Oncology and Rehabilitation 2017;23:117-20.

9. Liao X. Deaths caused by malignant tumors in residents in Xianning from 2015 to 2016. Journal of Preventive Medicine Information 2018;33:306-8.

10. Zhu M, Zheng X, Liang P, et al. Study on the relationship of social support and life quality of ovarian cancer patients. Chinese Journal of Nursing 2006;41:109-12.

11. Xu C, Cui X, Zhang C. Analysis of family status quo and influencing factors of hospitalized patients with liver cancer. Chinese Nursing Research 2018;32:3375-9.

12. Chen Q, Zheng J. Investigation of effect of family

support on the confidence level of cancer patients in the chemotherapy course. Friend of Chemical Industry 2017;36:148-9+187.

13. Hong D. Effect of family support on mental health and quality of life in patients with spinal tumor postoperative stability reconstruction. Today Nurse 2018;25:50-2.

14. Shi Q. Relationship between family support and quality of life in patients with chronic myelogenous leukemia. Today Nurse 2018;25:49-51.

15. Liu Z. Effect of family support on uncertainty and quality of life in patients with cervical cancer after surgery. China Prescription Drug 2018;16:107-8.

16. Zheng W. Effects of self-management behaviors and family support on quality of life and self-perceived burden of maintenance hemodialysis patients. Guide of China Medicine 2017;15:42.