

Original Article

Impact of pain care and hospice care on quality of life in patients with advanced gastric cancer

Xiaoxia Ma^{1*}, Suying Sun^{2*}, Yueling Zhao³, Xia Wang⁴, Weiyong Meng⁴, Zhixi Pang⁵, Hong Gao⁵, Botao Wang⁶

¹Department of Medical Insurance, Traditional Chinese Medicine Hospital, Beichen District, Tianjin 300400, China; ²Department of Internal Medicine, Yantai Affiliated Hospital of Binzhou Medical University, Yantai 264000, Shandong, China; ³Department of Science and Education, Traditional Chinese Medicine Hospital, Beichen District, Tianjin 300400, China; ⁴Department of Nursing, Traditional Chinese Medicine Hospital, Beichen District, Tianjin 300400, China; ⁵Department of Encephalopathy, Traditional Chinese Medicine Hospital, Beichen District, Tianjin 300400, China; ⁶Department of Orthopedics, Traditional Chinese Medicine Hospital, Beichen District, Tianjin 300400, China. *Equal contributors and co-first authors.

Received November 25, 2020; Accepted March 18, 2021; Epub July 15, 2021; Published July 30, 2021

Abstract: Purpose: To assess the influence of pain care and hospice care on the quality of life of patients with advanced gastric cancer. Methods: 136 patients with advanced gastric cancer were randomly divided into an experimental group (n=68) and a control group (n=68). The experimental group received pain care combined with hospice care, and control group received routine nursing. We measured quality of life and pain relief to assess the effect of pain care and hospice care. Results: After nursing, the visual analogue scale (VAS) of the two groups decreased, the VAS score of the experimental group was lower than that of the control group (P < 0.05). Compared with the control group, the scores of SF-36 questionnaire (physiological function, psychological function, physical pain, emotional function, social function, and mental health) of the control group were lower than those of the experimental group (P < 0.05). Conclusions: Pain care and hospice care can effectively reduce the pain degree of patients with advanced gastric cancer and improve the quality of nursing.

Keywords: Pain care, hospice care, the quality of life, advanced gastric cancer

Introduction

With continuous changes in people's lifestyle and living habits, the prevalence of gastric cancer is increasing. Asia has the highest incidence of gastric cancer worldwide. According to statistics, 429,200 cases of malignant tumors were newly diagnosed in China in 2015, and 281,400 cases died, while the incidence rate and mortality of gastric cancer were 679.1/10 million and 498/10 million [1]. Most of the patients are in the late stage of the disease when diagnosed, and then miss the best opportunity for surgery and treatment. Because of the lack of specific symptoms in the early stage of gastric cancer, the vast majority of cases develop to advanced stage at the time of diagnosis, and cure rate is extremely low [2, 3]. Early treatment requires resection of lesions, but most patients at the time of diagnosis are in the late stage. Advanced gastric cancer needs chemotherapy to alleviate progression

[4, 5]. During the process of chemotherapy, the side effects of chemotherapy drugs and the influence of tumor seriously affect the quality of life of patients [6]. In the final stage, there will be strong cancer pain, which seriously reduces the quality of life and increases the family pressure and economic burden of patients to a great extent. Some studies have found that effective nursing measures play a very important role in patients with advanced gastric cancer [7-9].

This study was to evaluate the clinical effect of pain care and hospice care on the quality of life of patients with advanced gastric cancer.

Materials and methods

Study design

The study was conducted at our hospital from October 2019 to October 2020. Inclusion criteria: 1) Patients with advanced gastric cancer

Pain care and hospice care in advanced gastric cancer

diagnosed by pathologic examination; 2) The tumor did not spread; 3) The tumor did not metastasize; 4) Subjects were willing to cooperate and implement the experiment. Exclusion criteria: 1) a history of mental illness; 2) a history of blood system diseases; 3) pregnant and lactating women; 4) a history of chronic diseases such as hypertension, coronary heart disease or diabetes. The researchers systematically explained the role, purpose, and process of the study to the patients and their families. The patients and their families voluntarily signed the informed consent form to participate in this study. This study was approved and recognized by the ethics committee of our hospital.

Participants and subgroup

156 advanced gastric cancer patients were treated in our hospital, including 136 advanced gastric cancer patients meeting the inclusion and exclusion criteria. The 136 eligible patients enrolled in this study were randomly allocated into two groups: the experimental group (EG) (n=68) and the control group (CG) (n=68).

Interventions

EG: Patients received pain care combined with hospice care. 1) Pain care: After the onset of the disease, patients are prone to pain due to the impact of the disease. According to the degree of pain, if the pain was mild under the tolerable range, we diverted the patient's attention by the way of playing music, video and so on. If patients' pain was very severe and beyond the scope of tolerance, we would follow the doctor's advice to use analgesic drugs to reduce the patient's pain. 2) Hospice care: The nursing staff should actively communicate with the patients, understand and sympathize with the patients, comfort and dredge their bad emotions as much as possible, and promote them to maintain a peaceful and stable psychological state. We play soft and soothing music in the ward where the patients live, or choose the music with beautiful tunes according to the patients' hobbies, so as to pacify their negativity and pessimism and disappointment, so as to keep them in good physiological and psychological condition. Nursing staff need to carry out death education and psychological intervention for patients, try to reduce the fear of death, accurately tell the patient's condition to

the family members of patients, make them fully prepared, and give family care and support to patients. 3) Life care: The nursing staff should turn over and pat the back for the patient, and clean the skin of the patient's face and arm, 3 times a day and frequently change clothes and bedding for patients to prevent pressure sores. 4) Diet care: Patients were advised to take high calorie, high protein, easy to digest light food. Total parenteral nutrition (TPN) can be used for those who can't eat.

CG: The patients received routine nursing and nurses would monitor the vital signs, meet the needs of patients, and answer questions.

Measure

The primary observation measure was quality of life and pain relief. The quality of life was assessed by SF-36 questionnaire, which was developed by the American Medical Outcomes Research Group in 1992. The scale includes eight dimensions: physiological function, psychological function, physical pain, emotional function, social function, and mental health. According to the different weights of each item on the scale, the sum of the scores of each item in the subscale was calculated and converted into a standard score of 0~100. The higher the score, the higher the quality of life [10, 11].

Pain relief was assessed by visual analogue scale (VAS): The total score is 10. The higher the score, the more severe the pain.

Statistical analysis

All data were analyzed by SPSS 22.0. Among them (n, %) refers to calculated data. The comparison of relevant data between groups and within groups was performed by chi square test, and the measured data were applied ($\bar{x} \pm s$). The comparison between groups was conducted by t test. $P < 0.05$ was a difference with significance. Analyses were performed using Graph Pad Prism (Graph Pad Software Inc., CA, USA).

Result

Clinical characteristics

Table 1 shows characteristics of the participants in two groups. The research included

Pain care and hospice care in advanced gastric cancer

Table 1. Clinical characteristics of patients with advanced gastric cancer in experimental group and in control group

	Experimental group (n=68)	Control group (n=68)	t/X ²	P
Age (years)	72.1±7.37	69.85±11.23	9.65	0.47
Sex			11.46	0.79
Male (n %)	47 (69.1%)	43 (63.2%)		
Female (n %)	21 (30.9%)	25 (36.8%)		
BMI (kg/m ²)	17.15±2.03	18.25±1.87	6.39	0.09
Marital status			16.85	0.32
Married	23 (33.8%)	19 (27.9%)		
Single	6 (8.8%)	9 (13.2%)		
Divorced or separated	20 (29.4%)	16 (23.5%)		
Widowed	15 (22.1%)	21 (30.9%)		
Unknown/missing	4 (5.9%)	3 (4.4%)		

Note: Significant difference if P < 0.05.

Table 2. Visual analogue scale (VAS)

Group	Number of cases	Before nursing	After nursing	t	P
Experimental group	68	7.48±2.14	5.11±1.62	5.481	0.000
Control group	68	7.36±2.18	6.24±1.89	2.354	0.000
t	-	0.262	2.354	-	-
P	-	0.786	0.002	-	-

Note: Significant difference is P < 0.05.

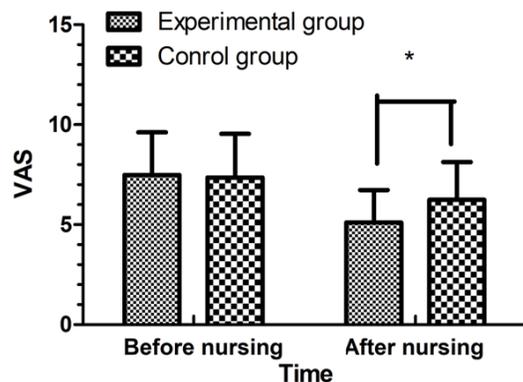


Figure 1. Visual analogue scale (VAS). *P < 0.05.

136 patients, involved 68 patients in the experimental group, mean age (72.1±7.37) years old, while in the control group, mean age (69.85±11.23) years old. The BMI in the experimental group was (17.15±2.03) kg/m², and in the control group was (18.25±1.87) kg/m²; there was no statistical significance between two group (P=0.09, > 0.05). The marital status had five statuses: married, single, divorced or separat-

ed, unknown/missing. There were no statistical significance between two groups.

Visual analogue scale (VAS) in two groups

As shown in **Table 2** and **Figure 1**, there was no significant difference in VAS score between the two groups before nursing ((7.48±2.14) vs. (7.36±2.18), P=0.786 > 0.05). After the nursing, the VAS scores of the two groups were decreased, and the VAS score of the experimental group was lower than that of the control group ((5.11±1.62) vs. (6.24±1.89), P=0.002).

Comparison of quality of life between the two groups (SF-36 questionnaire)

Mean score of physiological function before nursing in the experimental group was (36.7±4.03) points, and that after nursing was (53.59±10.44) points, while the score of physiological function before nursing in the control group was (38.55±2.67) points, and that after nursing was (43.74±14.31) points. The score of psychologic function before nursing had no significant difference between the two groups ((54.4±3.06) vs. (53.35±3.45), P=0.327 > 0.05), while there was an obvious difference between two groups after nursing ((67.39±25.34) vs. (40.32±16.33), P < 0.05). The physical pain in the experimental group before and after nursing were respectively (41.35±2.49) points and (47.68±12.05) points, while those in the control group were respectively (40.75±3.14) points and (39.25±9.31) points. The score of emotional function before nursing had no significant difference between two groups ((33.55±1.96) vs. (32.25±2.19), P=0.08 > 0.05); while there was a difference between two groups after nursing ((56.38±13.51) vs. (38.64±11.19), P < 0.05). The score of social function before nursing had no significant difference between two groups ((38.85±1.85) vs. (39.8±1.75), P=0.11), while there was a difference between two groups after nursing ((55.02±12.04) vs. (42.39±13.57), P < 0.05). The scores of mental health in the

Pain care and hospice care in advanced gastric cancer

Table 3. SF-36 questionnaire

	EG Group (n=68)	CG group (n=68)	t	p value
Physiological function				
Before nursing	36.7±4.03	38.55±2.67	5.892	0.089
After nursing	53.59±10.44	43.74±14.31	8.135	0.000
Psychological function				
Before nursing	54.4±3.06	53.35±3.45	7.539	0.327
After nursing	67.39±25.34	40.32±16.33	9.324	0.000
Physical pain				
Before nursing	41.35±2.49	40.75±3.14	8.840	0.516
After nursing	47.68±12.05	39.25±9.31	7.249	0.000
Emotional function				
Before nursing	33.55±1.96	32.25±2.19	6.438	0.08
After nursing	56.38±13.51	38.64±11.19	10.344	0.000
Social function				
Before nursing	38.85±1.85	39.8±1.75	4.563	0.11
After nursing	55.02±12.04	42.39±13.57	9.432	0.000
Mental health				
Before nursing	52.1±2.96	50.15±4.73	6.278	0.67
After nursing	67.39±25.34	40.32±16.33	9.324	0.000

Note: Significant difference if P < 0.05. EG: Experimental group; CG: Control group.

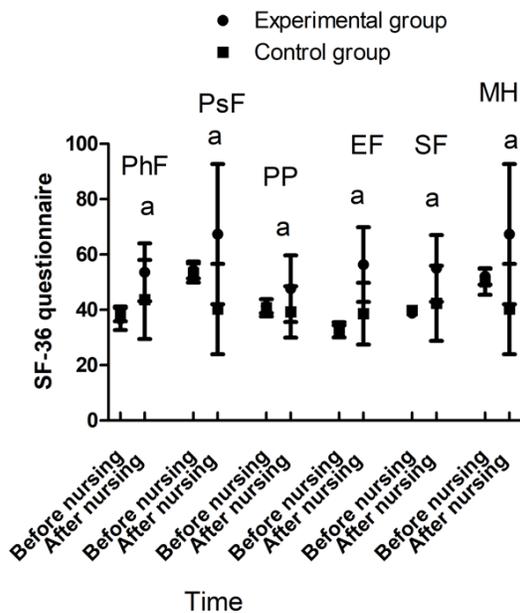


Figure 2. Comparison of quality of life between the two groups (SF-36 questionnaire). Compared with before nursing, ^aP < 0.05; PhF: Physiologic function; PsF: Psychological function; PP: Physical pain; EF: Emotional function; SF: Social function; MH: Mental health.

experimental group before and after nursing were respectively (52.1±2.96) points and

(67.39±25.34), and those in the control group were respectively (50.15±4.73) points and (40.32±16.33) points. The SF-36 questionnaire of patients (physiologic function, psychological function, physical pain, emotional function, social function, and mental health) in the experimental group improved more compared with the control group (P < 0.05) (Table 3 and Figure 2).

Discussion

As shown in our study, pain care combined with hospice care can improve the patients' quality of life. Visual analogue scale (VAS) score of the experimental group was significantly lower than that of the control group. The SF-36 questionnaire of patients (physiologic function, psychological function,

physical pain, emotional function, social function, and mental health) in the experimental group improved more compared with the control group (P < 0.05).

Gastric cancer is the number one cancer in China, with a high mortality rate and younger age. The implementation of pain care for patients, helps make the degree of pain light [12]. Within the scope of tolerance, the patient's pain can be alleviated by diverting the patient's attention. After that, hospice care and nursing measures are implemented for the patient, and the patient's family members are involved to select the appropriate time to inform the patient of the actual situation of the condition, so that the patient can make psychological preparation in advance [13, 14]. This study found that the implementation of nursing measures for patients with advanced gastric cancer will improve the quality of life, but compared with the scores of patients in the control group, the improvement in the observation group was more obvious. Thus pain nursing combined with hospice care for patients with advanced gastric cancer can improve the quality of life of patients on the basis of relieving pain.

Treatment for patients with advanced gastric cancer is palliative, and the clinical manifesta-

tion is pain. Patients with this disease have great mood fluctuation and are prone to negative emotions such as depression. Some patients even refuse treatment, so that induced nursing is more difficult [15-17]. Routine nursing is more passive and has lack of care, which is not conducive to patients' recovery, and will easily lead to tension between nurses and patients. Pain care is through drug and non-drug care, such as diverting the patient's attention, massage, or other ways to reduce the patient's pain. Hospice care is to give patients support late in the life of patients [18]. Pain care combined with hospice care is a comprehensive and holistic nursing method, which can relieve the clinical manifestations and relieve depression, fear, and other adverse emotions. In our study, the SF-36 questionnaire of patients (physiological function, psychological function, physical pain, emotional function, social function, and mental health) in the experimental group improved more significantly compared with control group ($P < 0.05$). Pain care can reduce the progression of the disease for patients with pain; hospice care for patients can let patients get good family support. Warm support from nursing staff and family member can let patients leave in a dignified and comfortable environment [18].

Patients with advanced gastric cancer usually have severe pain, and are prone to varying degrees of pessimism and disappointment, and even suicide. Therefore, nursing staff can actively care for patients, understand patients, let patients feel the care and support, and use suggestive therapy to let patients accept the correct concept and eliminate pressure [19]. Secondly, education should be carried out according to the age and education level of different patients to make them aware of the natural laws of birth, aging and death, and help them eliminate the anxiety and fear brought by death [20, 21]. This requires that nursing staff not only have professional nursing knowledge and rich clinical practice experience, but also constantly improve their professional quality, with rich theoretical and clinical practice experience, in order to better carry out the correct death education for patients, so that patients can correctly face death.

In summary, medical staff should use pain care combined with hospice care intervention for

advanced gastric cancer patients, to help patients relieve pain, eliminate bad psychological thoughts, and improve the quality of life. This is worthy of application in nursing.

Acknowledgements

This work was supported by Fund of National Natural Science Foundation of China (No. 81371992).

Disclosure of conflict of interest

None.

Address correspondence to: Botao Wang, Department of Orthopedics, Traditional Chinese Medicine Hospital, No. 436 Jingjin Road Beichen District, Tianjin 300400, China. Tel: +86-15822759930; E-mail: xfsunhaihong@163.com

References

- [1] Chen W, Zheng R, Baade PD, Zhang S, Zeng H, Bray F, Jemal A, Yu XQ and He J. Cancer statistics in China, 2015. *CA Cancer J Clin* 2016; 66: 115-132.
- [2] Zhang X, Xu J, Liu H, Yang L, Liang J, Xu N, Bai Y, Wang J and Shen L. Predictive biomarkers for the efficacy of cetuximab combined with cisplatin and capecitabine in advanced gastric or esophagogastric junction adenocarcinoma: a prospective multicenter phase 2 trial. *Med Oncol* 2014; 31: 226.
- [3] Chau I, Fuchs CS, Ohtsu A, Barzi A, Liepa AM, Cui ZL, Hsu Y and Al-Batran SE. Association of quality of life with disease characteristics and treatment outcomes in patients with advanced gastric cancer: exploratory analysis of RAINBOW and REGARD phase III trials. *Eur J Cancer* 2019; 107: 115-123.
- [4] Carter GC, Kaltenboeck A, Ivanova J, Liepa AM, San Roman A, Koh M, Rajan N, Cheng R, Birnbaum HG, Kim JS and Bang YJ. Real-world treatment patterns among patients with advanced gastric cancer in South Korea. *Cancer Res Treat* 2017; 49: 578-587.
- [5] Huang KS, Wang SH, Chuah SK, Rau KM, Lin YH, Hsieh MC, Shih LH and Chen YH. The effects of hospice-shared care for gastric cancer patients. *PLoS One* 2017; 12: e0171365.
- [6] Hong JH, Rho SY and Hong YS. Trends in the aggressiveness of end-of-life care for advanced stomach cancer patients. *Cancer Res Treat* 2013; 45: 270-5.
- [7] McCarthy EP, Burns RB, Ngo-Metzger Q, Davis RB and Phillips RS. Hospice use among Medicare managed care and fee-for-service pa-

Pain care and hospice care in advanced gastric cancer

- tients dying with cancer. *JAMA* 2003; 289: 2238-45.
- [8] Ngo-Metzger Q, McCarthy EP, Burns RB, Davis RB, Li FP and Phillips RS. Older Asian Americans and Pacific Islanders dying of cancer use hospice less frequently than older white patients. *Am J Med* 2003; 115: 47-53.
- [9] Lee A, Khulusi S and Watson R. Gastroesophageal cancer patients need earlier palliative intervention - using data to inform appropriate care. *Eur J Oncol Nurs* 2019; 40: 126-130.
- [10] Gardikiotis I, Manole A and Azoicăi D. Quality of life with mastectomy for breast cancer, in terms of patients' responses of sf-36 questionnaire. *Rev Med Chir Soc Med Nat Iasi* 2015; 119: 529-35.
- [11] Cashin PH, Mahteme H, Syk I, Frödin JE, Glime-lius B and Graf W. Quality of life and cost effectiveness in a randomized trial of patients with colorectal cancer and peritoneal metastases. *Eur J Surg Oncol* 2018; 44: 983-990.
- [12] Liu L, Bai Y, Gu HZ, Zhu HT, Yu Y, Lu P, Wang YX, Zhang H and Li M. The prognostic efficacy of the 8th edition UICC TNM classifications for gastric cancer in Chinese patients: a study based on follow-up system of nursing department. *Medicine (Baltimore)* 2018; 97: e12284.
- [13] He XL and Cao ZM. Effect of high-quality nursing intervention on the psychological disorder in patients with gastric cancer during perioperative period: a protocol of systematic review and meta-analysis. *Medicine (Baltimore)* 2020; 99: e20381.
- [14] Muto Y, Takebuchi K, Watanabe M, Kawarada Y, Hasegawa K, Sakonji M and Kurihara M. Three patients with terminal gastric cancer who achieved good QOL through home hospice care. *Gan To Kagaku Ryoho* 1998; 25 Suppl 4: 665-8.
- [15] Dalhammar K, Malmström M, Schelin M, Falkenback D and Kristensson J. The impact of initial treatment strategy and survival time on quality of end-of-life care among patients with oesophageal and gastric cancer: a population-based cohort study. *PLoS One* 2020; 15: e0235045.
- [16] Scarpi E, Dall'Agata M, Zagonel V, Gamucci T, Bertè R, Sansoni E, Amaducci E, Broglio CM, Alquati S, Garetto F, Schiavon S, Quadri S, Orlandi E, Casadei Gardini A, Ruscelli S, Ferrari D, Pino MS, Bortolussi R, Negri F, Stragliotto S, Narducci F, Valgiusti M, Farolfi A, Nanni O, Rossi R and Maltoni M; Early Palliative Care Italian Study Group (EPCISG). Systematic vs. on-demand early palliative care in gastric cancer patients: a randomized clinical trial assessing patient and healthcare service outcomes. *Support Care Cancer* 2019; 27: 2425-2434.
- [17] Aoyama T, Yoshikawa T, Sato T, Hayashi T, Yamada T, Ogata T and Cho H. Equivalent feasibility and safety of perioperative care by ERAS in open and laparoscopy-assisted distal gastrectomy for gastric cancer: a single-institution ancillary study using the patient cohort enrolled in the JCOG0912 phase III trial. *Gastric Cancer* 2019; 22: 617-623.
- [18] Ukai K, Okajima A, Yamauchi A, Sasaki E, Yamaguchi Y, Kimura H, Aleksic B and Ozaki N. Total palliative care for a patient with multiple cerebral infarctions that occurred repeatedly in association with gastric cancer (Trousseau's syndrome). *Palliat Support Care* 2013; 11: 169-72.
- [19] Davoodi A, Gholizadeh L, Rezazadeh H, Sheikalipour Z, Lakdizaji S, Mirinajad K and Rahmani A. Effects of a self-care education program on quality of life of patients with gastric cancer after gastrectomy. *J Community Support Oncol* 2015; 13: 330-6.
- [20] Layke JC and Lopez PP. Gastric cancer: diagnosis and treatment options. *Am Fam Physician* 2004; 69: 1133-40.
- [21] Bilgin S and Gozum S. Effect of nursing care given at home on the quality of life of patients with stomach cancer and their family caregivers' nursing care. *Eur J Cancer Care* 2018; 27: e12567.