Clinical research of eliminating the negative psychological impact of patients with cancer with psychological support and intervention combined amitriptyline

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Abstract: Cancer patients need not only advanced therapeutic method but also spiritual counseling. Therefore clinical nurses need to analyze the negative psychological status and discuss the effect of psychological support and intervention on the improvement of patients' psychological burden, thus to establish effective intervention plans for patients. A total of 30 patients with cancer were selected for study. They were divided into blank group, intervention group and control group. Patients in three groups were orally administrated amitriptyline if necessary. Patients in blank group directly filled in the form of self-perceived burden and self-made questionnaire of general material of patients. Different groups were interfered with psychological support in different patterns for 3 months. The differences of SPB experience, MCMQ and QLQ-CCC in two groups were compared respectively. It was found that SPB score of cancer patients in blank group was in moderate level of burden, while SPB score in intervention group and control group were relatively lower, and score of MCMQ and QLO-CCC in intervention group were higher than that in control group. It was concluded that the experience of self-perceived burden existed in most cancer chemotherapy patients. Psychological support and intervention can obviously reduce the SPB experience of cancer patients and improve patients' living quality.

Keywords: Amitriptyline, psychological intervention, patients with caner, self-perceived burden.

INTRODUCTION

Cancer is one of the primary causes of death all over the world. The morbidity and mortality of cancer all over the world present sustainable growth status, which seriously threatens human health. Facing with cancer, patients not only feel heavy burden physically, but also have various negative induced emotion psychologically, including feared state of mind, strong desire for social support and psychological dependence on chemotherapy (Yanyan and Yafang, 2010). Under this background, the concept of self-perceived burden (SPB) was introduced into patient's therapeutic regimen. As frontier of disease research, SPB truthfully and accurately described the inner experience that patients underwent in the therapeutic process from the perspective of care recipient. Researches showed that the psychological phenomenon of worrying to "become family burden" existed in most patients. However, medical staff and caregiver did not pay enough attention to that. In the research of relationship between disease and care, the research of care acceptance individual and care effect has increasingly presented its importance. Therefore, a series of burden produced by cancer patients as care recipient should be concerned in clinical works.

Effective nursing intervention is adopted to reduce the burden experience of patients, thus to assist them to live through the period of hospitalization smoothly. As a part of medical treatment, psychological intervention is becoming more and more important in the process of oncotherapy, which also has attracted the attention of experts in our country, and researches were carried out for that. In the article Research Progress of Effect of Integrated Social Support on Terminal Cancer Patients (Jiajia and Zhe, 2011), through psychological research on cancer patients, Zhang Jiajia, Huang Zhe explained that social support could buffer the harmful effect caused by life events or stress on mental heath by enhancing the individual handling ability and adaptation effectiveness to reality stimulation, thus to obtain the effective way of relieving the negative emotion of cancer patient. Based on the Document Analysis in paper Research on the Construction and Application of Life Meaning Intervention Scheme of Terminal Cancer Patient (Xing, 2013), Ming Xing of The Second Military Medical University preliminarily constructed the scheme of life meaning intervention of terminal cancer patient. And he used the qualitative research result of life meaning seeking of terminal cancer patient to revise this scheme, which provided reference frame of enhancing the sense of meaning, reducing its mood of anxiety and depression and degree of psychological distress for terminal cancer patients, and promoting their survival quality in spiritual level. In the article Influence of Integrated Information

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Support on Psychological Status of Elderly Cancer Patients (Linfei and Huijun, 2013), Jiang Linfei and Zhang Huijun stated that information support could relieve the psychological stress of patients, and enhance the understanding of disease of patients. It could also relieve anxiety and change coping style of patients. Moreover, information support could increase the ability of ego-enhancement, thus to better improve the psychological status of the aged by using general information support and intervention.

However, focusing on the problem mentioned above, this paper discussed the effect of psychological support and intervention in improving patients' psychological burden, and stated the importance of medication coordination in critical moment. Through comparative study, it proved that the obtained psychological support of patients with cancer during therapeutic process could reduce their psychological self-burden, so as to better coordinated with the treatment.

MATERIALS AND METHODS

Research design

After consented by Shanghai Association of Medical Ethics and informed consent obtained from patients, 30 patients with cancer detected by Shanghai certain top three hospitals of oncology pathological examination were selected during March 2012 and June 2012 were selected. They were divided into three groups, each of 10 patients. And they were respectively blank group, intervention group and control group. Patients in blank group were to fill in the form of self-perceived burden and questionnaire of general material of self-restraint patients, and SPSS statistical software was adopted to conduct single factor analysis and multiple regression analysis (Huan and Qingwen, 2012). In intervention group, medical worker, psychological counselor and volunteer were served as the main intervention group to conducted intervention. The intervention theme of correlation and progression was determined. Group intervention activities of 3 months duration was conducted during patients' chemotherapy through many forms, such as health education, relaxation training, experience exchange, anticancer declaration learning, etc. There were almost 6 times, and once every two weeks with 60 min duration. After the third time and the sixth time intervention, patients were asked respectively to fill in the form of self-perceived burden (SPBS), medical coping modes questionnaire (MCMQ) and questionnaire of life quality of Chinese cancer-patients chemical biotherapy (QLQ-CCC) (Jian *et al.,* 1997). In control group, conventional health education was provided, including discharge of hospital and hospitalized health education, diet nursing during chemotherapy, pain assessment, pain prevention, etc. Leaflets of cancer related knowledge was put up in ward regularly. At the same time of usual nursing, nurses were asked to conduct language comfort for unpeaceful mood of patient, which continued for 3 months. Patients were asked to fill in SPBS, MCMQ and QLQ-CCC at the sixth and twelfth week respectively. After finished the intervention, the collected enumeration data, measurement data and descriptive data were conducted statistical analysis. The effect of psychological intervention was analyzed.

Research tool

General condition questionnaire

The content of questionnaire of general condition of self-restraint patients included 14 items, namely patient's age, gender, marriage, employment status, educational background, family income, medical treatment payment method, entity, disease diagnosis, main care giver, chemotherapy frequency, operation or not, health status of care giver, age of care giver.

Medical coping style questionnaire

Three kinds of patient disease coping strategies were included in this questionnaire: face, avoid and surrender. The coping mode was judged according to form score. These strategies have been applied to the research of mental health status of patients with cancer, chronic hepatitis, myocardial infarction, etc and their response, which was of certain analysis of significance.

Questionnaire of self-perceived burden

There were 5 dimensionalities and 29 items in this questionnaire, namely nurse physical power burden, financial burden, social burden, family burden and psychological burden. Likert1-5 grade point system (Laibin, 2006) was adopted in this questionnaire. After summation, the SPB level of patient was measured. The highest score was 155, and the lowest score was 30. The more score they got, then the more burdens they had.

Questionnaire of life quality of Chinese cancer-patients chemical biotherapy (QLQ-CCC)

There were 5 dimensions mainly involved in QLQ-CCC: 16 indexes in body, of which 7 indexes irrelevant to cancer and its treatment and 9 indexes relevant to cancer and its treatment were included; 5 indexes in mind and psychology; 5 indexes in social aspect; while 9 indexes in the other aspect (total subject feeling). And 5-grade score point system was adopted. After summation, patients' living quality was evaluated. The more score they got, then the higher living standard they had.

STATISTICAL ANALYSIS

Statistical software SPSS19.0 was adopted to conduct statistical analysis of data for all materials, and $P<0.05$ was served as the bound of significant difference. Population statistics and clinical data were used as statistical description; whether the baseline level of each variable in two groups had difference was compared by chi-square test and rank sum test. The score of each

outcome indicator of the research object in different time point were compared by correlation analysis, descriptive analysis, non-parametric test and multivariate analysis of variance. The intervention effect was analyzed and compared. The change of longitudinal score of each questionnaire during intervention between two groups was analyzed and compared by repeated variance measurement.

RESULTS

The chi-square test of general data in blank group, intervention group and control group showed that there were no statistical significance (P>0.05) of differences in these aspects, such as age, gender, marriage, employment status, chemotherapy time, main care giver, etc.

Assessment of pharmaceutical administration

Cancer is a fatal public health problem all over the world. Once it is diagnosed, patients will feel fragile and pain, and then a series of cascade reactions appear. In addition to cancer pain and organism disease, mental anxiety is also considered as inevitable and most painful ting by patients and their family members (Kowal and Wilson, 2012; Akazawa *et al.,* 2010). Therefore, it is of great importance to correctly and reasonably select the therapy method and management of mental anxiety. However, at present, there are still some wrong idea and cognition in the process of psychotherapy among patients or even the medical workers in China. For example, long-term usage of amitriptyline will cause some sequelae like epilepsy and liver function lesion. It can be used only when patients cannot control their mind and they are extremely depressed. Only the advanced cancer can orally administrate amitriptyline according to the standard dose.

In this paper, we did full assessment on the mental condition of patients, and adopted the drug therapy when their mental states were aggravated which conformed to rules in *Good Clinical Practice*. It guaranteed the specification of clinical trail for drugs, with scientific and reliable result. In addition, it also protected the rights and interests of subjects and guaranteed their safety.

Assessment on the efficacy of amitriptyline

As the classical tricycle antidepressants, amitriptyline can retard the reuptake of presynaptic membrane to noradrenaline and 5-HT, increase the content of 5-HT in synaptic cleft. In addition, it has functions of anti-depression, stronger mitigation, syngignoscism and cholinolytic effect (Jihui *et al.,* 2011; Jingqing *et al.,* 2011). It can enhance the emotion of the depressed patients and improve their tardy thought, slow action and loss of appetite.

However, all three groups in this study occurred blank mood out of control transferred to depression of different degrees. The number of patients with depressive symptom in intervention group was the smallest, while that in control group was the largest. At that moment, orally administration of amitriptyline can better coordinate with psychological support and intervention. The specific result is shown in table 1.

Comparisons of SPB score of research subject between intervention group and control group before and after intervention

The multivariate analysis of variance was adopted to compare the various dimensionalities score and SPB score between intervention group and control group from nurse physical power burden, financial burden, emotional burden, social burden, family burden and psychological burden. The results were shown in table There existed the interaction (P<0.01) of both time factor and group factor of research subject in financial burden, emotional burden, family burden, psychological burden and SPB score. The trend of financial burden, emotional burden, family burden, psychological burden and SPB score were somewhat different as time changed, which indicated that psychological support and intervention was effective in the improvement of SPB experience of cancer patient.

Comparisons of dimensional score of research subject MCMQ between intervention group and control group before and after intervention

The multivariate analysis of variance was adopted to compare whether there are differences of the score in face, avoid and surrender form before intervention, after the third time intervention and after the sixth time intervention of the research subject in two groups. The results were shown in table 3:

According to the result of table data, it was showed that the face score of intervention group was apparently higher than that of control group. And the proportion of patients that selected positive coping style in intervention group was markedly increased. However, there was no obvious change in control group. It was indicated that psychological intervention could apparently promote patients to select the positive coping style, which lowered the tendency of patients selected surrender coping style.

Comparisons of score of research subject QLQ-CCC between intervention group and control group before and after intervention

The multiple variations were adopted to analyze QLQ-CCC total score, symptom of entry, emotion of entry and score of entry of relation with others. The results were shown in table 4:

The result showed that both QLQ-CCC total score and various entries met the sphericity test condition (P>0.05). QLQ-CCC total score and symptoms of entry of research subject had the interaction (P<0.05) of obvious time factor and group factor in, which indicated that the tendency of QLQ-CCC total score and symptoms of entry

Table 1: Results of efficacy of amitriptyline

Group	Number of the depressed	Oral administration of amitriptyline	Change degree of symptoms
Blank group	4	Once a week	Emotion was controlled and mental state returned to normal
Intervention group	1	Once per two weeks	Positively cooperate with psychological intervention and spirit gradually became better
Control group	2	Once per two weeks	Positively cooperate with psychological intervention and spirit gradually became better

Table 2: Score of SPB in two groups before and after intervention

Item	Group	Baseline	Measurement after 3 times of intervention ($\overline{X} \pm S$)	Measurement after 6 times of ntervention ($\overline{X} \pm S$)	F inter-group	F intra-group	F interaction
Nurse physical power burden	intervention group	10.93±2.00	9.37±2.51	7.55±3.44	1.550	13.172b	0.509
	control group	9.62±2.00	10.11±2.39	9.88±2.39			
	F value	5.862a	1.242	8.595b			
Financial burden	intervention group	22.27±3.30	20.21±4.10	14.10±5.58	15.291c	19.558c	12.524c
	control group	22.07±3.03	21.25±3.85	21.00±4.08			
	F value	0.013	0.975	27.483c			
Emotional burden	intervention group	11.48±1.84	10.13±2.21	8.10±2.43	7.037a	6.471b	6.857b
	control group	10.74±1.95	10.66±2.70	10.77±2.66			
	F value	2.138	0.645	15.369c			
Social burden	intervention group	13.13±2.61	10.34±3.19	8.89±2.76	1.531	18.937c	3.926a
	control group	13.13±2.61	10.52±3.69	10.66±3.68			
	Fvalue	0.023	0.036	4.189a			
Family burden	intervention group	13.10±2.61	11.21±2.74	8.82±2.53	2.927	12.280c	5.029b
	control group	12.22±1.78	11.81±3.68	11.29±2.99			
	F value	2.145	0.496	11.121b			
psychological burden	intervention group	29.68±4.98	24.89±2.74	21.92±3.74	34.215	14.172c	1.563
	control group	30.89±3.17	31.03±8.13	27.92±6.74			
	Fvalue	1.132	11.904b	21.789c			
Total score of self-perceived burden	intervenion group	100.51±8.89	86.17±9.83	68.31±12.64	31.647c	44.701c	18.873c
	control group	98.57±6.68	95.2±16.00	91.71±11.52			
	Fvalue	0.866	6.719a	53.220c			

of research subject was different as time changed. Thus psychological intervention could improve patient's living quality.

DISCUSSION

Research about SPB was an important field of understanding the internal real experience of terminal cancer patients, which mainly included the worry of others and influence on himself (Laurie *et al.,* 2012). As the important factor of evaluating the living quality of terminal cancer patients, SPB had become a new subject in research field of patients with cancer (Yiyuan *et al.*, 2011; Xiu, 2010). Currently, there are still short of systematic researches on SPB. The available SPB research result and measurement tools are formed based on overseas studies which are also lack of experiment, thus it is quite necessary to study the SPB of domestic terminal cancer patients under Chinese culture background, economical base and medical system. In addition, it is essential to systematically explore its influencing factors and comprehensively, scientifically and objectively evaluate the SPB so as to formulate the specific intervention measurement and provide theoretical

Table 3: Score of MCMQ in two groups before and after intervention

Item	Group	Baseline	Measurement after 3 times of intervention ($\overline{X} \pm S$)	Measurement after 6 times of intervention ($\overline{X} \pm S$)	Inter-group	Intra-group	Interaction
Face	Intervention group	19.34±3.16	20.76±1.97	22.03±1.76	4.751a	9.143a	5.177b
	Control group	19.83±2.183	19.70±1.77	20.23±1.55			
	F	0.651	3.595	5.166a			
Avoid	Intervention group	16.83±2.24	16.97±2.179	17.10±2.94	0.043	1.499	1.051
	Control group	16.18±3.56	17.89±2.657	17.14±4.282			
	F	0.684	2.082	0.002			
Surrender	Intervention group	12.97±2.76	11.76±1.58	10.79±1.45	4.463a	12.073b	0.498
	Control group	13.22±2.68	12.22±1.09	11.78±1.06			
	F	0.125	1.865	8.347b			

Table 4: Score of QLQ-CCC in two groups before and after intervention

Item	Group	Baseline	Measurement after 3 times of intervention ($\overline{X} \pm S$)	Measurement after 6 times of intervention ($\overline{X} \pm S$)	F inter-group	F intra-group	F interaction
Total score of living quality	Intervention group	103.97±13.33	114.58±10.11	114.90±12.04	15.229c	1.208	9.531c
	Control group	107.31±8.19	102.21±16.03	102.17±8.07			
	F	1.352	12.402b	22.347c			
Score of symptom of entry	Intervention Group	33.55±4.87	35.41±4.45	36.10±4.33	7.27b	1.382	5.693b
	Control group	34.07±3.80	31.50±4.411	33.07±3.90			
	F	0.201	11.859c	7.707a			
Score of emotion of entry	Intervention group	30.93±5.79	34.37±3.84	35.27±5.25	8.227b	2.323	6.292b
	Control group	32.14±3.58	32.32±4.63	30.35±3.59			
	F	0.897	3.335	16.992b			
Score of entry of relation with others	Intervention group	19.34±3.92	21.37±3.39	19.73±2.70	0.974	6.995b	2.431
	Control group	20.46±3.35	20.82±4.01	18.11±3.46			
	F	1.339	1.197	3.891			

Of which, a: $p<0.05$; b: $p<0.01$; c: $p<0.001$

basis for helping patients to set ip healthy coping style. In addition, SPB researches has the vital practical significance for the humanistic concern of terminal cancer patients and keeping the harmonious relationship of two parts (Congmei, 2010; Xia, 2009). Based on the analysis of influencing factors of SPB, through establishing intervention group and adopting constant and progressive intervention group, this paper discussed the effect of psychological support in reducing the SPB of patients with cancer. Research showed that patients with cancer were with symptoms of depressed psychology caused by passive emotion. If patients with serious such kind of symptoms were not timely treated with amitriptyline, then they would appear emotional flooding and even commit suicide. On the contrary, after regular oral administration of amitriptyline by patients who accepted drug therapy, their emotions would gradually recover to positive and upward. It was good for the subsequent cancer therapy (Xiaoping *et al.*, 2012). Moreover, the research result also showed that psychological support and intervention could enhance patients' living quality. Symptoms and emotion of patients in intervention group had improved of different degrees after psychological intervention and support, and changes of scores of their relationships with others were of no statistical significance.

CONCLUSION

Research found that patients with cancer therapy were generally experienced with SPB, and this kind of experience was determined by multiple factors. However, psychological intervention and support could obviously reduce SPB experience of patients with cancer and improve their financial burden, emotional burden, family

burden and psychological burden. Therefore, the integration of social force, establishment of intervention team with medium of group activity and psychological intervention on patients with cancer during chemotherapy are practicable and meaningful, which can provide reference basis for launching psychological nursing.

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