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Hospice Care and Consultation Services Improve the Rate of Do-Not-Resuscitate Order Signing and Reduce the Use of Chemotherapy at the End of Life

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Summary

We evaluate the percentage of terminal cancer patients willing to sign do-not-resuscitate (DNR) orders and avoid unnecessary chemotherapy.From 2005 to 2009, atotal of 3,024 terminal cancer patients were enrolled. The DNR rate significantly improved from 45% to 75% and the unnecessary chemotherapy rate decreased from 5.2% to 2.9% one year after our hospice care and consultation service was implemented. Moreover, the DNR rate remained at 75% during the following 3 years. In this study, we conclude that hospice care and consultation can improve the rate of DNR order signing and decrease the rate of unnecessary chemotherapy use in terminal cancer patients.

Abstract

Background

Through the hospice consulting system, terminal cancer patients can have good quality end-of-life care. Hospice consulting systems can help educate patients and facilitate their informed decision making. To evaluate the percentage of terminal cancer patients willing to sign do-not-resuscitate (DNR) orders and avoid unnecessary chemotherapy.

Methods

From 2005 to 2009, a retrospective questionnaire-based study, a total of 3,024 terminal cancer patients in National Cheng-Kung University Hospital were enrolled. The consulting team of hospice physicians and hospice nurse specialists provided the truth-telling, information about DNR orders, clinical symptom control, and so on. Type of cancer and clinical symptoms were recorded, and the rates of DNR order signing and use of chemotherapy in last month of life were calculated.

Results

The DNR rate significantly improved from 45% to 75% and the unnecessary chemotherapy rate decreased from 5.2% to 2.9% one year after our hospice care and consultation service was implemented. Moreover, the DNR rate remained at 75% during the following 3 years. The main symptoms exhibited by patients were fatigue (24.2%), dyspnea (16.1%), and pain (15.9%).

Conclusions

Hospice care and consultation can improve the rate of DNR order signing and decrease the rate of unnecessary chemotherapy use in terminal cancer patients.

Keywords: Do notresuscitate order; hospice care; hospice consultation service

Introduction

Cancer is the leading cause of death in Taiwan. In 2009, more than79,000 patients were newly diagnosed with cancer and more than 41,000 patients diedfrom cancer according Taiwan Cancer Registry Database (http://tcr.cph.ntu.edu.tw). Based on regulations for Cancer Care Quality Assurance Measuresenacted in 2006 pursuant tothe Cancer Control Actof May 21, 2003, acancer center and palliative care consultationand hospicecare systemwere established in National Cheng-Kung University Hospital in Taiwan.

Patients with cancer require continuous supportive care by cancer care professionals. Taiwan is the first Asian country to enact a Natural Death Act [1] in 2000. The act states that dying patients or their families have the right to refuse unnecessary medical management that only prolongssuffering. The Natural Death Act provides medical personnel a legal basis to makemedical decisions in accordance with the patients' wishes. In oriental cultures, truth-telling about end-of life issues ranks first among all ethical dilemmas [1,2]. Do-not-resuscitate (DNR) statusis not discussedwith patients in the

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early stages of their disease and this delay in truth-telling may affect their quality of end-of-life care [3].Oncology clinicians and nurses in Taiwan differ in their attitudes toward truth telling [4,5]. Although the use of hospice and other palliative care services at the end of life has increased, many patients enroll in hospice less than 3 weeks before their death, which limits the benefit they may gain from these services [6]. Many patients receive chemotherapy the month before hospice admission [7]. Patients with terminal and advanced cancers often endure chemotherapy late in their disease course leading to unnecessary adverse effects, loss of quality of life, and delay in hospice care referral [8]. Hospice consulting services have a positive effect on the utilization of hospice care, DNR order signing rate, and quality of end-of-life care for terminal cancer patients [9,10]. However, many people receive anti-cancer chemotherapy until the end-of-life in Taiwan. Excessive chemotherapy can decrease the quality of life of patients. Physicians should consider the side effects in terminally ill patients before administering chemotherapy [11]. This issue of whether to provide chemotherapy to patients in a palliative care ward needs to be discussed [12]. We therefore analyzed data on clinical symptoms, type of cancer, and DNR order signing status collected yearly from patients eligible for palliative care consultation and hospice care in our cancer center during the period2005 (the beginning of our consultation service) to 2009. We found that hospicecare andpalliative care consultationcan improve clinical symptoms, increase the DNR order signing rate, and avoid unnecessarychemotherapy in terminal cancer patients.

Materials and Methods

Demographic Characteristics

From 2005 to 2009, a total of 3,024 terminal cancer patients in National Cheng-Kung University Hospitalwere enrolled. The physicians and patients signed forms allowingthe hospice care system to provide palliative care and consultation. The symptoms of patients were evaluated by the questionnaire, evaluation and assessment form. We use the cut points on 0-10 Numeric Rating Scales (NRS) for symptoms assessment scale. The questionnaire form include pain, nausea, vomiting, dyspnea, fatigue, constipation, sleeping disorder. We also evaluate other symptoms and signs including edema, ascites, abdominal distension, infection, jaundice, anemia and wound. If the patients could not read or write, a visiting member of the hospice teamwould read the questions and recordthe patients oral answers. In all, 235 patients received chemotherapy in the last month of lifefrom 2009 to 20011.

The Hospice Care and Palliative Care Consultation System

The focus of our team of hospice physicians and hospice nurse specialists was to provide good hospice care in acute hospice care wards and to transfer terminal cancer patients to suitable post-acute hospice care units. Our consultation team provide consent form, application form, service content form, the symptoms questionnaire, evaluation and assessment form, pain control and assessment form, advanced care plans form to the patients.

Definition Of Unnecessary Chemotherapy

Continuation of chemotherapy very near death may indicate overuse. This issue was clarifiedfor different tumor types. Unnecessary chemotherapy was defined as use of futile chemotherapy duringthe last month of life [13,14] or death during the same hospitalization.

Statistical Analysis

All analyses were performed usingSPSS 16.0 (SPSS, Chicago, IL, USA). Frequency distribution was used to describethe demographic data and the distribution of each variable.

Results

Patients' Characteristics

A total of 3,024 terminal cancer patients in acute wards were referred to our hospice consult team. One year after implementing our palliative care consultationand hospice care program, the DNR order signing rate increased significantly from 45% to 75% and remained 75% during the following 3 years. The data are shown in Figure 1. The most common types of cancer werehepatocellular carcinoma(22.7%), lung cancer (19.2%), and gastrointestinal cancer (17.8%). The patients' characteristic and cancer typesarelisted in Table 1. More than 50% of patients diagnosed with terminal cancerin our hospitalreceived hospice care and palliative care consultation.

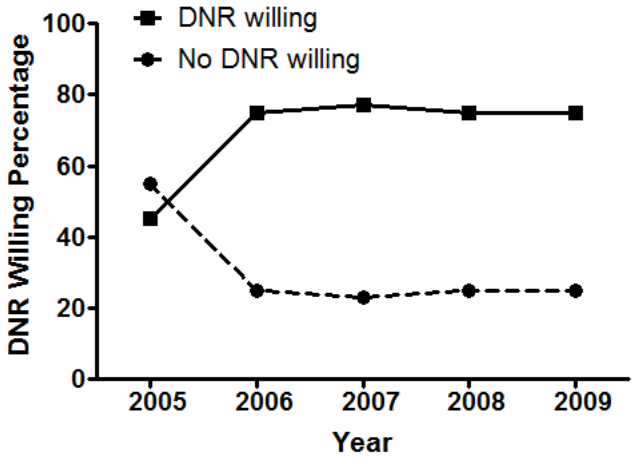

Figure 1: Rate of DNR order signing increased from 45% to 75% after one year.

Clinical Symptoms

After consultation, 65% of patients received hospice care (ending in discharge, death,or transfer to another hospital) fromtheir physicians in an acute care ward and35% of patients received hospice care after transfer home or to a hospice care ward. The main symptoms exhibited by patients were fatigue (24.2%), dyspnea (16.1%), pain (15.9%), constipation (9.2%), nausea and vomiting(6.2%), edema(6.1%), ascites fluid build-up in the abdomen (5.8%; Figure 2).

Chemotherapy in the Last Month of Life

Chemotherapy was still in use one month before deathin patients withgastrointestinal(G-I) cancers (31.5%),hematological malignancies (20.4%), lung cancer (17.4%), and genitourinary (GU) cancers (6.4%; Figure 3). After the implementation of ourpalliative care consultation and hospice care program, the unnecessary chemotherapy rate decreased from 5.2% to 2.9% (Table 2). Total

Table 1: Characteristics of Cancer Patients Requesting Hospice Care

Patients no	3024(100%)
Age (years)	
Median age, yr	66
Range	24-96
Performance Status	
1-2	327(10.8%)
3-4	2697(89.2%)
Sex	
Male/Female	1763/1261(58.3%/41.7%)
Primary Cancer Type	
Liver cancer	686 (22.7%)
Lung cancer	580 (19.2%)
Gastrointestinal cancers	537 (17.8%)
Head and neck cancers	390 (12.9%)
Genitourinary tract cancers	189 (6.3%)
Breast cancer	155 (5.1%)
Gynecologic cancers	151 (5.0%)
Hematological cancers	163 (5.4%)
Other cancers	173 (5.7%)

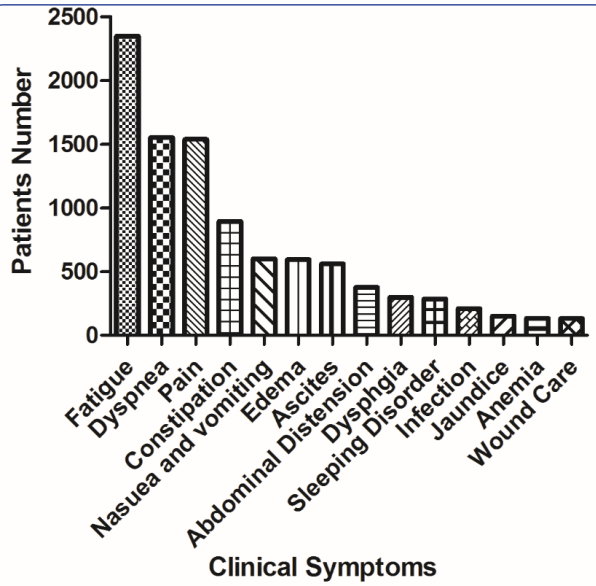

Figure 2: The major symptoms exhibited by our patients.

560-600 Patients had died in the course of each year. The median overall survival was 10.4 months (95% confidence interval, 9–13 months).

Discussion

Chemotherapy has played an important role in improving canceroutcomes and is a cornerstone of therapy for most patients

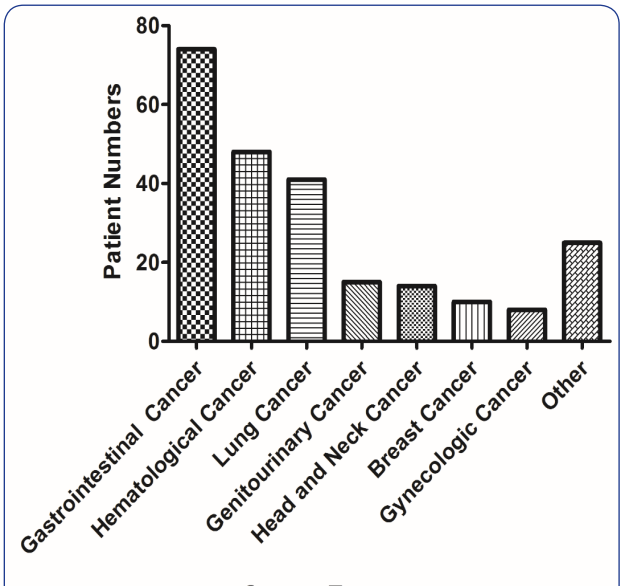

Figure 3: The major cancer types in patients who received chemotherapy one month before death.

Table 2: Rate of chemotherapy useduring the last one month of life

Year	No. of patients receiving chemotherapy during the last one month of life (%)	Total no. of patients receiving chemotherapy at NCKUH*
2009	93(5.2%)	1790
2010	84(4.6%)	1815
2011	58(2.9%)	2108

*NCKUH: National Cheng-Kung University Hospital

with cancer. However,it has many side effects. We found that chemotherapy was used in allpatients referred to palliative care within 3 months before death andin only a small number of patients referred to palliative care within 1 month before death.This confirms that chemotherapy use extending to the end of life is less frequent and unnecessary. Doctors should be able to recognize the implications of excessive and aggressive use of chemotherapy and should actively communicate with patients about their therapeutic choices. However, many factors affect the use of chemotherapy near the end of life. Financial incentives [15-17] and the attitudes of patients with incurable cancer toward medical treatment in the last phase of life [18] affect the quality of health care provided by primary care physicians.Kao et al. reported that younger age, tumor type, and chemosensitivity are the important predictors of palliative chemotherapy usage in patients with advanced disease and thatthe individual clinician is the only factor influencing continuance of chemotherapy in the last 4 weeks of life [13]. In our study, the most frequent cancer types in terminally ill patients were gastrointestinal cancers,hematological cancers, and lung cancer. In the study by Kao et al., the most common types were neurological cancer, ovarian cancer, and colorectal cancer.In contrast tothe rate of chemotherapy continuance (i.e., greater than

17%) reported in the study of Liu et al. [19], the rate was around 2.9% in our hospital. The difference in this rate may be due to fact that our hospital is a medical center with a well-trained hospice team.Hematological cancersareconsidered to be curable diseases, so the rateof chemotherapy use in the last month of life is high in Taiwan. New targeted therapies (such as ErlotinibandGefitinib) were recently developed for first line treatment of non- small cell lung cancer [20]. Nevertheless, if and when targeted therapy fails, chemotherapy remains the only option for further treatment.

Supportive and Palliative Care Unit integration has decreased chemotherapy use in the last 30 days of life [14]. A careful evaluation of prognostic factors in advanced cancer patients and provision of appropriate supportive and palliative care can reduce the use of futile anticancer chemotherapy and preserve a patient's quality of life. We found thatour hospice care and consultation program reducedthe use of chemotherapy at the end of life.

Many comprehensive cancer centers reported that pain controlwas a top priority of palliative care [9,7,21]. By providing hospice care information, the primary medical team was able to reduce the need for pain control. In our study, the percentage of symptoms control need for pain is 15.9%.

The provision of hospice care and consultation services increased the DNR ordersigning rate [22]. We foundthat the DNR ordersigning rate significantly improved from 45% to 75% one year after implementing our program and remainedat 75% during thefollowing 3 years. Theresults may reflectthe change in attitude that occurs among members of the primary medical team after palliative careconsultation.

Conclusion

After hospice care/palliative care consultation,the DNR order signing rate will improve and rate of futile chemotherapy use in terminal cancer patients can be decreased.

Acknowledgements

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