

Delirium in Patients with Cancer at a Tertiary Hospice Care Unit

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Introduction: Delirium is one of the most common neuropsychiatric complications in patients with terminal cancer and an independent factor of poor prognosis for short-term survival. There were lack of previous studies examining the risk factors, assessment, management, and outcomes of delirium. We investigated the prevalence of delirium, types of delirium, risk factors for delirium, association between delirium occurrence and survival, and differences of survival up to delirium types. **Methods:** We retrospectively reviewed the medical records of 176 cancer patients admitted at a tertiary hospice care unit from Jan. to Dec. 2013. **Results:** Of the 176 terminal cancer patients, 99 patients (56.2%) experienced delirium. The most common subtype was hypoactive delirium (50.5%). The mortality rate was higher in delirium group than control group (88.9% vs. 62.3%, $p < 0.001$). There were no differences of mean survival time between delirium group and control group (29.58 ± 4.38 vs. 27.12 ± 1.96 , $p = 0.978$) and between subtypes of delirium (hyperactive vs. hypoactive vs. mixed type 15.89 ± 2.59 vs. 16.21 ± 2.06 vs. 16.56 ± 2.71 , $p = 0.987$). In univariate and multivariate analysis, the use of opioid had independent factor for the development of delirium (HR 4.465, 95% CI 1.039-19.187, $p = 0.044$). **Conclusions:** Delirium is a frequent complication in terminal cancer and the development of delirium increased the mortality rate. The use of opioid is an independent factor of the development of delirium.

Table 1. Univariate and multivariate logistic regression analysis of candidate predictor variables

	Univariate	Multivariate	
	p-value	Odds ratio (95% CI)	p-value
Metastasis	0.407	2.324 (0.648-8.331)	0.196
Multiple metastasis	0.563	0.573 (0.215-1.527)	0.265
Brain metastasis	0.594	3.476 (0.358-33.754)	0.283
CNS RTx.	0.189	0.182 (0.016-2.059)	0.169
Opioids use	0.029	4.465 (1.039-19.187)	0.044

Figure 1. Kaplan-Meier survival analysis for the all terminal cancer patients and terminal cancer patients with delirium

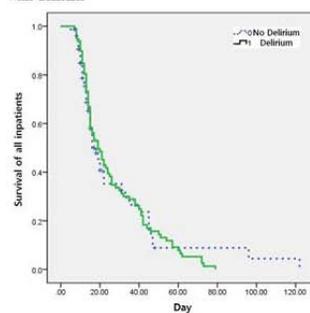
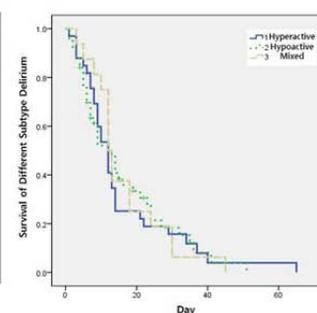


Figure 2. Kaplan-Meier survival analysis for the subtypes of delirium



Palliative survival prediction for terminally ill gastric cancer patients

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Background: Terminally ill patients with gastric cancer have specific gastrointestinal symptoms and signs related with cancer progression. To estimate accurate survival expectancy of gastric cancer patients is important for timely decision making of their end of life issues. **Methods:** We reviewed the 276 patients with terminally ill gastric cancer who were treated at Yonsei Cancer Center between January 2007 and December 2011 and eventually were died. Retrospectively, we conducted the data of clinical signs, symptoms, and laboratory results at the time of cessation of the active treatment. Then, we established the palliative survival estimation model by stratification of risk group. **Results:** Median palliative survival time from the decision to stop further treatment to death was 42 days. In the multivariate Cox regression analysis, 5 parameters were identified as prognostically significant factors: anorexia, dyspnea, hypoalbuminemia, elevated blood urea nitrogen, and elevated serum alkaline phosphatase. We scored each variables as 1-3 for symptom (1: asymptomatic, 2: symptomatic, 3: symptomatic requiring intervention) and 1-2 for lab results (1: normal, 2: abnormal) and summed up each scores. Using the total score, patients were divided into 3 risk groups: low-risk (5-7 points), intermediate-risk (8-11 points), and poor-risk patients (12 point). As a result, median palliative survival for low-risk group (n = 110) was 87.0 ± 7.4 days, intermediate-risk group (n = 158) and poor-risk group (n = 6) were 31.0 ± 2.1 days and 6.0 ± 2.1 days, respectively ($p < 0.0001$). **Conclusions:** Using multivariate analysis and summation of each prognostic factor score, 3 risk groups were determined. After validation by prospective multicenter trial, this palliative survival time estimation tool will be helpful to inform the accurate survival for terminally ill gastric cancer patients.