Assessment of Hypnotic Prescriptions in Adult Cancer Inpatients Reusing Data in a Clinical Data Warehouse

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Abstract and Objective

Cancer mortality accounts for one-third of all disease mortalities in Japan. Hypnotics are common medications to treat cancer-related stress and other symptoms. Studies on hypnotic usages were mainly from survey data. In this study, we addressed this issue by reusing data in our clinical data warehouse (DWH). Adult cancer patients who were admitted for at least 7days (2007/4/1-2008/4/1) were defined as eligible study subjects. A multinomial logistic regression model was built to assess relationships between six dichotomous variables with hypnotic prescriptions. We identified 1,947 cases, among which 55.3% (1,076) were prescribed with hypnotics; 49.4% (961) were older than 65 years; 48.5 % (945) were females; 19.2% (374) had operation procedures; 29.6% (576) were admitted for more than 30 days; 47.4% (923) were prescribed with anticancer agents and 22.1 % (431) were prescribed with opioids. The overall model was well-fitted (χ^2=177.518, df=6, p=0.000). The Wald statistic of individual variables indicated that the adopted predictors were significantly related to the hypnotic prescriptions (P<0.05).

Keywords:

Data warehouse, Hypnotics, Cancer, Logistic regressions

Introduction

Cancer patients face many clinical challenges including stress and sleep disorders. It is estimated that up to 50% of these have been affected by insomnia. Hypnotics are usually prescribed medications to help relieve cancer-related sleep disturbances and others symptoms to improve their quality of life. Studies on hypnotic usages in cancer patients were typically drawn from survey results. Database analyses on such topics are still limited. In this study, we addressed this issue by reusing routinely collected clinical data in our institutional data warehouse.

Methods

Adult (age >18 years) cancer inpatients who were admitted for at least 7 days (2007/4/1-2008/4/1) were identified via ICD-10 codes C00 to C97. In addition, age, gender, operation procedure and length of stay (LOS) were also picked up from the DWH table called Diagnosis Procedure Combination (DPC). Hynotics, anticancer agents and opioids were extracted from prescription table via medication codes. These codes were linked to the medication classes listed in the medication master. Data were retrieved using Business Objects 6.5.1 and processed with Microsoft Access 2003. We set hypnotics as the dependent variable and six dichotomous variables (age>65 years, gender, operation, anti-cancer agents, opioids and LOS >30 days) as the independent variables to form a multinomial logistic regression model. Statistical analysis was performed with SPSS 17.0 –Windows.

Results

We identified 1,947 patients in total. The neoplasms' distribution was as follows: 38.7 % digestive organs; 16.8 % female genital organs; 9.5 % respiratory and intrathoracic organs; 7.7% breast and 27.3 % others. 55.3% of 1,947 patients were prescribed with hypnotics; 49.4% were older than 65 years; 48.5 % were females; 19.2% had operation procedures; 29.6% with LOS >30 days; 47.4% and 22.1 % were prescribed with anticancer agents and opioids, respectively. The variable estimates table is shown below:

Parameter Estimates

Hypnotics[a]		B	Std.Error	Wald	df	Sig.	Exp (B)	95% CI for Exp(B) L-Bound	U- Bound
1	Intercept	1.422	.369	14.881	1	.000			
	age	.207	.099	4.391	1	.036	1.230	1.014	1.494
	gender	-.413	.101	16.565	1	.000	.662	.543	.807
	los	-1.168	.119	96.982	1	.000	.311	.247	.392
	operation	-.385	.128	9.023	1	.003	.680	.529	.875
	anticanceragents	.634	.105	36.475	1	.000	1.884	1.534	2.315
	opioids	-.265	.122	4.752	1	.029	.767	.604	.974

a. The reference category is:2

Conclusion

Our findings indicated that the observed predictors were significantly related to the hypnotic prescriptions, among which anticancer agents and age > 65 years contributed the most.