Frequency, outcomes and predictive factors associated with opioid-induced neurotoxicity for patients with advanced cancer receiving palliative care

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Introduction

Opioid-induced neurotoxicity (OIN) is described as a spectrum of symptoms, from drowsiness to hallucinations, delirium, myoclonus, seizures and hyperalgesia, which results from opioid receptor stimulation or the accumulation of opioid metabolites

Objective

To examine the frequency, outcomes, and predictive factors associated with OIN for in patients with advanced cancer receiving palliative care.

Methods

The eligibility criteria was: advanced cancer patients admitted to MD Anderson Cancer Center and seen by the palliative care specialist (PCS), ≥ 18 years of age, and on opioid medication for ≥ 24 hrs. Out of 600 patients who were selected randomly from 3014 consecutive consults from Jan 2014 to Dec 2014, 348 patients were evaluable. Data including patients’ demographics, ESAS, diagnosis and management of OIN, and overall survival (OS) were reviewed.

Results

Table 1. baseline characteristics of patients with OIN and those without OIN

	Without OIN (n=296, 85.1%)	With OIN (N=52, 14.9%)	<i>p</i>
Median/mean age	57/55.9	59/55.7	0.798
Gender: men (%)	150 (50.7)	26 (50)	0.928
Marital status	*	*	0.124
Education	*	*	0.603
Diagnosis	*	*	0.964
ECOG PS 0-2/3-4, n	134/156	12/39	0.021
Smoking Hx	*	*	0.685
CAGE neg/pos, n	243/48	43/8	0.886
Liver dysfuction, neg/pos,n	277/18	47/5	0.348
Renal disease neg/pos, n	271/24	43/9	0.038
Median/mean MEDD	63.8/106	102.5/181	0.003
Med duration of admission	12 (85.7)	10 (71.4)	0.111

- 15% (n=52) patients had OIN. Of these patients, 46% and 54% developed 1 and ≥2 OIN symptoms respectively. The most common OIN symptom was delirium (44%), followed by drowsiness (40%), myoclonus (39%) and hallucination (37%).
- Opioid rotation/reduction and hydration were most common interventions for OIN

Figure 1. The study flow chart of data collection

Table 2. Multivariate analysis of predictive factors for OIN

	<i>p</i>	OR	95% CI
Baseline ESAS			
Pain	0.043	1.27	1.01-1.60
Drowsiness	0.007	1.28	1.07-1.53
Appetite	0.014	1.29	1.05-1.58
MEDD	0.020	1.01	1.00-1.01

Figure 2. Overall survival between patients with OIN and those without OIN

Conclusions

- OIN was reported in about 15% of the inpatients referred to PCS.
- Careful monitoring of OIN is needed for cancer patients reporting severe pain, severe drowsiness, poor appetite or receiving high MEDD.