

## Letters

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### ***State of Consciousness During the Last Days of Life in Patients Receiving Palliative Care***

To the Editor:

Most patients want to interact with proxies and nursing staff to be able to make clear decisions until death.<sup>1</sup> In addition, to address and treat symptoms efficiently, communication is crucial. But communication can be altered because of disease progression or metabolic abnormalities, and side effects from drugs are frequently implicated in the occurrence of delirium or impaired consciousness. Common drugs that cause this effect include anxiolytic and antipsychotic agents and even opioids.<sup>2,3</sup> Previous studies have reported that about 30% of patients were conscious until death, meaning that 70% were not.<sup>4,5</sup> In recent years, great improvements have been made in the management of pain with the availability of various new agents and the introduction of opioid rotation.<sup>6–8</sup> We thus wanted to determine whether these practice changes could have had an effect on the number of days that patients did not communicate before they died.

We performed a retrospective chart review of consecutive hospitalized patients who died in our palliative care wards during the year 2005. Cases were extracted from a study published elsewhere.<sup>9</sup> Data collected included demography, main medical diagnoses, Charlson comorbidity score,<sup>10</sup> and Mini-Mental State Examination (MMSE) at admission.<sup>11</sup> The number of unconscious days before death was calculated. Patients were considered unconscious if communication was completely impaired and if all drugs had to be prescribed on a parenteral basis.

Data regarding prescription of opioids, benzodiazepines, and neuroleptics were collected

during the last two weeks of life. Cumulative doses of drugs were calculated as oral morphine equivalents for opioids, as oral diazepam equivalents for benzodiazepines, and as oral chlorpromazine equivalents for neuroleptics. Information about the most frequently used opioids, benzodiazepines, and neuroleptics and their routes of administration were collected. The prescription of palliative sedation was also recorded. Bivariate association between each of the continuous variables was measured using Student's *t*-tests.

One hundred forty-one patients (88 women and 53 men) were analyzed. Mean age was  $74 \pm 11.8$  years (range 31–95 years). All had cancer, with primary sites of tumor located in the gastrointestinal tract ( $n = 48$ ; 34%), the respiratory system ( $n = 30$ ; 21%), the genitourinary tract ( $n = 30$ ; 21%), the breast ( $n = 14$ ; 10%), the brain ( $n = 6$ ; 5%), and others ( $n = 12$ ; 13%). Mean ( $\pm$ SD) Charlson comorbidity score was  $6.1 \pm 1.2$ . Mean ( $\pm$ SD) MMSE at admission was  $20.9 (\pm 10.1)$ , range from 0 to 30). Forty-eight (34%) patients had delirium at admission, according to clinical judgment. Five patients had a previous diagnosis of dementia. Median length of hospitalization was 15 days (mean =  $31.4 \pm 34.1$  days). Forty-eight (34%) patients remained conscious until death. All others were unconscious during  $1.8 \pm 3.2$  (mean  $\pm$ SD) days before death. Forty-three (31%), 24 (17%), 7 (5%), and 19 (13%) remained unconscious during the last one, two, three, and three or more days, respectively, before death.

Opioids, benzodiazepines, and neuroleptics are described in Table 1. Opioid rotation was done in 32 patients. Three patients (2%) were intentionally sedated because of refractory symptoms, using midazolam at a mean dose of 30 mg/day for a total period of five days.

Table 1  
Prescribed Opioids, Benzodiazepines, and Neuroleptics and Most Frequently Used Drugs

Prescribed Drugs	n (%)	Equivalent Dose, Mean ± SD	Main Drug Used
Opioids	131 (93)	113.5 ± 189.9	Morphine (n = 92 [70%]) Hydromorphone (n = 28 [21%]) Buprenorphine (n = 8 [6%]) Other (n = 3 [3%])
Benzodiazepines	83 (59)	12.1 ± 5.5	Lorazepam (n = 64 [77%]) Clonazepam (n = 9 [11%]) Other (n = 10 [12%])
Neuroleptics	57 (40)	36.2 ± 17.2	Haloperidol (n = 52 [93%]) Chlorpromazine (n = 5 [9%]) Quetiapine (n = 2 [4%])

### Comment

Most individuals want to be able to control as much as possible the circumstances of their own death.<sup>12–15</sup> In our study, more than half of the patients were conscious until the day before dying. This is very similar to previously published studies, despite improvement achieved in the management of symptoms.<sup>4,5</sup> It thus appears that the impaired level of consciousness observed in the last days of life probably is more because of the progression of the underlying disease, leading to metabolic abnormalities, than of the primary or secondary effect of drugs used for symptomatic treatments.

In any case, the fear of suffering and the fear of a long agony are daily realities shared by many patients in palliative care. Health professionals should thus be prepared to have open discussions with patients and their families about the dying process. They could, for instance, explain that the period of impaired consciousness may last less than three days in most cases.<sup>16</sup>

In our study, prescription of sedative drugs and opioids during the last two weeks of life was quantitatively similar to those reported from studies in Europe and the United States.<sup>17–19</sup> A small number of patients (n = 3 or 2%) required palliative sedation therapy,<sup>7</sup> whereas it is reported to be much higher in other palliative care units.<sup>4,20–22</sup> This low rate of palliative sedation cannot be explained by a different terminology or a divergent definition. Benzodiazepines and neuroleptics prescribed in our unit would have a low sedative potential effect compared with the doses that were used elsewhere.<sup>18</sup> In addition, according to the principle of double effect, opioids were used to relieve pain and suffering (good effect) but not to achieve sedation (bad effect), as opposed to what was described in a review about sedation practices in the Netherlands.<sup>23–25</sup>

In conclusion, our exploratory study shows that most patients were kept conscious until a median of three days before their death. To better explore the last days of life and understand the natural dying process in palliative care, prospective studies with standardized assessment tools will have to be conducted.

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### ***Axonal Common Peroneal Nerve Palsy and Delayed Proximal Motor Radial Conduction Block Following Infliximab Treatment***

To the Editor:

A 38-year-old female, treated with infliximab (3 mg/kg) for a two-year history of psoriatic arthritis, was referred with a sudden onset of left foot drop. At referral, eight courses of infliximab (anti-tumor necrosis factor [anti-TNF] monoclonal antibody) had already been infused. Her past medical history was otherwise unremarkable. No familial history of hereditary neuropathies, that is, hereditary neuropathy with liability to pressure palsy, was reported.

Examination revealed paresis of the left tibialis anterior, peroneus longus and extensor hallucis longus (Medical Research Council [MRC] Scale for Muscle Strength:4/5). Sensory function, tendon reflexes, and also a lumbar spine magnetic resonance imaging (MRI) scan were normal. The findings of the nerve conduction study (stimulation sites at the ankle, at distal, and proximal to fibular head) were consistent with left axonal common peroneal nerve palsy, characterized by small peroneal compound motor action potentials (CMAPs) from the extensor digitorum brevis and tibialis anterior. Peroneal CMAPs and the superficial peroneal response were <50% compared to the contralateral side. There was no evidence of conduction block around the fibular head. Sural and saphenous nerve sensory conduction study was normal. Needle electromyography (EMG) showed mildly reduced recruitment of motor units in the affected peroneal nerve-innervated muscles and in the short head of the biceps femoris. Overall, and considering that, according to the patient’s statement, there was no evidence of peroneal nerve mechanical irritation from prolonged leg crossing or squatting, the