BRIEF ORIGINAL

Palliative sedation and mortality in emergency departments: descriptive study of cases in the MORCAT registry

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Objective. To describe the clinical management of palliative sedation and the characteristics of sedated patients in 11 Catalan hospital emergency departments.

Methods. Prospective descriptive study of a cohort of patients given palliative sedation between April and July 2018. We registered patient demographic and disease data, the Charlson comorbidity index (CCI), patient's point of origin before emergency department arrival, times related to emergency care, and medications used.

Results. We included 323 patients (48.9% men) with a mean (SD) age of 84 (12) years. The CCIs were significantly higher in patients attended in level-I hospitals. Palliative sedation was the first option in 27% and was initiated within 18 (28) hours of arrival on average, an interval that was significantly shorter in level-II hospitals. Most patients (74.2%) died in the emergency department.

Conclusions. Patients treated with palliative sedation in hospital emergency departments are older and have serious concomitant conditions. Most patients are first treated with intention to cure. Time until the start of palliative sedation differs significantly according to hospital level.

Keywords: Emergency department. Sedation. Palliative care. Ethics.

Registro MORCAT: descripción de la sedación paliativa y la mortalidad en los servicios de urgencias

Objetivo. Describir las características y manejo de los pacientes con sedación paliativa (SP) en 11 servicios de urgencias hospitalarios (SUH) catalanes.

Método. Estudio prospectivo descriptivo de pacientes que recibieron SP entre abril y julio de 2018. Se recogieron variables demográficas, enfermedades del paciente, índice de Charlson (IC), procedencia, tiempos en urgencias y fármacos utilizados.

Resultados. Se incluyeron 323 pacientes (48,9% varones) con una edad media de 84 (DE 12) años. El IC fue significativamente mayor en hospitales de primer nivel. La SP se consideró primera opción de tratamiento en el 27% y se inició en una media de 18 (DE 28) horas tras su llegada, significativamente diferente en hospitales de segundo nivel. Fallecieron mayoritariamente en el SUH (74,2%).

Conclusiones. Los pacientes que reciben SP en los SUH son ancianos con comorbilidad grave, y en su mayoría reciben tratamiento con intención curativa como primera opción terapéutica. Existen diferencias significativas del tiempo transcurrido hasta el inicio de la SP según la complejidad del centro.

Palabras clave: Urgencias. Sedación. Cuidados paliativos. Ética.

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Introducción

The growing aging of the population and the medicalization at the end of life have an impact on hospital emergency departments (ED). In the period 1997-2003, 53% of deaths in Spain occurred in a hospital centre. The ED accounted for 10.7% of these deaths[1], and this has been a subject for reflection[2]. In previous studies carried out in EDs, more than 80% of deaths were predictable and were preceded by palliative treatment in 41% of cases[3,4].

The end of life becomes yet another urgent process, even though patients prefer to die at home rather than in an ED box. For this reason, programs have been developed from primary care that try to address this situation[4].

Projects for the humanization of the emergency care tend to guarantee the comfort of patients in a terminal situation and make it easier for the family to live the death of a loved one in the least traumatic way. This, together with the fact that hospital mortality is an indicator of quality of care and a tool for hospital planning and management[5], has led in recent years to increased interest in the care of terminally ill patients in the ED. This study aims to describe the volume, characteristics and management of end-stage patients requiring pallia-

tive sedation (PS) in the participating EDs in Catalonia, in view of the hypothesis of heterogeneity in the indication of palliative treatments in the EDs[5].

Method

Prospective, non-interventional, consecutive inclusion cohort study of patients who received PS in 11 EDs in Catalonia from April 1 to July 31, 2018. All patients who were given PS, after obtaining informed consent from family members or representatives, were included. The main criterion for exclusion was refusal to participate in the study.

Demographic variables were collected, as well as the patient's pathology, identification as a complex chronic patient (CCP) or MACA (Model of Care for Advanced Chronic Malaltia), follow-up by palliative care units, non-resuscitation alarm and Charlson's comorbidity index, a system for assessing life expectancy at 10 years, depending on the age at which it is assessed, and the patient's comorbidities. Times related to emergency care, sedation, drugs used, refractory symptom and final destination were recorded. For analysis, the hospitals were grouped according to the level of complexity assigned to them.

For statistical analysis, data are expressed as mean and standard deviation (SD) or as absolute values and percentages. Continuous variables of non-parametric distribution are compared using the Mann-Whitney test, and the Chi-square test or Fischer exact test for qualitative variables. The statistical significance was established at a p value of less than 0.05.

The study was approved by the CEIC of the Arnau de Vilanova University Hospital and endorsed by the participating centres.

Results

A total of 323 patients were included, with an average age of 84 (SD 12) years, 157 (48.9%) males and 164 (51.1%) females. Eighty-three per cent came from their usual place of residence, 57.2 per cent from home and 26 per cent from a nursing home. The alarm of non-resuscitation was recorded in the emergency medical record in 195 (72%) patients. Table 1 shows the characteristics of the patients grouped by level of hospital complexity. Level I was followed by 108 (33.4%), 78 (24.1%) by level II and 137 (42.4%) by level III. No differences were detected in terms of age, sex, or identification as CCP/MACA. The mean Charlson index was 6.23 (SD 3.5), and was significantly higher in patients from first level hospitals. Data regarding the sedation process are shown in Table 2. PS was the first treatment option in 27% of patients, with no differences between centres. There were also no differences in terms of refractory symptom and drugs used, except for scopolamine. Overall, 86% of patients were treated with midazolam and all patients in level I hospitals, 69 (88.9%) in level II hospitals and 133 (97%) in level III hospitals received morphine. The

Table 1. Characteristics of patients according to level of care

	Global N=323 n (% of the centre/ % of the total)	**Level I N=108** n (% of the centre/ % of the total)	**Level II N=78** n (% of the centre/ % of the total)	**Level III N=137** n (% of the centre/ % of the total)	p
Age in years [mean (SD)]	84 (12)	84 (11)	81 (15)	86 (9)	0.024
Male sex [n (%)]	157 (48.9)	57 (52.8)	40 (51.3)	60 (43.8)	0.325
Provenance					0.01
Address	187 (57.2)	65 (60.7)	56 (73.7)	66 (48.9)	
Residence	84 (26)	23 (21.5)	12 (15.8)	49 (36.3)	
Socio-Sanitary Center	43 (13.3)	19 (17.8)	8 (10.5)	16 (11.9)	
Other Hospital	4 (1.2)	–	–	4 (3)	
Not recorded	4 (1.2)	–	2	2	
Cataloguing					
Complex chronic patient (CCP)	127 (39.3)	43 (41)/33.9	27 (34.6)/21.3	57 (41.6)/44.9	0.571
Patient with advanced chronic disease (MACA)	46 (14.6)	20 (18.7)/43.5	9 (12)/19.6	17 (12.5)/37	0.311
Palliative Care					
PADES	39 (12.56)	17 (16.2)/43.6	11 (14.5)/28.2	11 (8)/28.2	0.127
Palliative Care Unit (CPU)	)37 (11.7)	18 (17.3)/48.6	8 (10.5)/21.6	11 (8.1)/29.7	0.086
Main diagnosis					0.025
Cardiovascular	84 (6)	29 (26.9)/34.5	13 (16.7)/15.5	42 (30.7)/50	
Neurological	81 (25)	30 (27.8)/37	15 (19.2)/18.5	36 (26.3)/44.4	
Respiratory	60(181)	22 (20.4)/36.7	13 (16.7)/21.7	25 (18.2)/41.7	
Oncology	48 (14.8)	11 (10.2)/22.9	20 (25.6)/41.7	17 (12.4)/35.4	
Sepsis	12 (3.7)	1 (0.9)/ 8.3	5 (6.4)/41.7	6 (4.4)/50	
Polytraumatism	1 (0.3)	–	1 (1.3)/100	–	
Others	29 (8.9)	–	–	–	
Charlson Index [mean (DSDE)]	6.23 (3.5)	6.73 (2.88)	5.94 (3.9)	5.96 (3.6)	0.027
Do not resuscitate order	195 (72)	37 (64)	52 (67)	106 (77.9)	1.01

SD: standard deviation; n: number; PADES: patient home care program and support teams.

Table 2. Datos relacionados con el proceso de sedación paliativa

	Global N = 323 n (%)	Level I N = 108 n (%)	Leve II N = 78 n (%)	Leve III N = 137 n (%)	p
Palliative sedation as the first option	74 (27.0)	20 (32.8)	25 (32.5)	29 (21.3)	0.52
Refractory Symptom					
Dyspnea	111 (34.3)	111 (34.3)	24 (30.7)	73 (53.2)	0.01
Pain	27 (8.3)	27 (8.3)	6 (7.6)	21 (15.3)	0.01
Shaking	4 (1.2)	4 (1.2)	3 (3.8)	1 (0.7)	0.05
Delirium	28 (8.6)	28 (8.6)	4 (5.1)	18 (13.1)	0.049
No record	153 (47.3)	153 (47.3)	–	–	–
Drugs					
Morphine	310 (95.9)	108 (100)	69 (88.9)	133 (97.0)	0.05
Midazolam	278 (86.0)	93 (86.0)	73 (93.6)	112 (81.8)	0.055
Haloperidol	69 (21.5)	64 (92.0)	5 (7.2)	0	0.01
Scopolamine	215 (66.0)	69 (64.0)	34 (43.5)	112 (81.7)	0.01
Time in hours until start of sedation [media (DE)]	18 (28)	23 (34)	10 (13)	17 (29)	0.013
Time in hours from sedation to death [mean (SD)]	22 (24)	21 (22)	22 (31)	22 (25)	0.158
Total time in hours [mean (SD)] [median (IQR)]	39 (38)	43 (40)	32 (36)	39 (38)	0.901
Final location					0.088
Emergency	240 (74.2)	77 (72.6)	59 (75.6)	104 (77)	
Hospitalization	60 (19.1)	20 (18.9)	15 (19.2)	25 (18)	
Socio-Sanitary Center	15 (4.7)	9 (8.5)	1 (1.3)	5 (3.7)	
Residence	2 (0.6)	–	2	–	
Home hospitalization	1 (0.3)	–	1 (1.3)	–	
Address	1 (0.3)	–	–	1	

SD: standard deviation; IQR: interquartile range.

average time to initiation of PS was 22 (SD 34) hours in level I centers, 17 (SD 29) hours in level III and 10 (SD 13) hours in level II, with a statistically significant difference in the latter. From the beginning of the sedation to death, 22 (SD 24) hours elapsed, with no differences between centres.

The average total time from arrival to death was 43 (SD 40) hours in level I, 32 (SD 36) hours in level II and 39 (SD 38) hours in level III. Most deaths occurred in the ED (74.2%).

Discussion

This is the first descriptive, pilot study conducted in Spain on the situation of PS in emergency departments showing differences in the management of these patients. The patients who received PS in the Catalan EDs participating in the study were elderly, presented severe comorbidity and three quarters were treated with curative intention as their first therapeutic option, so that PS did not start until almost 18 hours after their arrival to the ED. This profile coincides with that observed in other studies[6]. Some patients arrive in a state of agony while others have room to try other therapeutic options. Oncological origin constitutes only 14.8% of cases, probably because it receives more attention and palliative orientation. There are significant differences in the time of initiation of sedation according to the complexity of the center. In second level hospitals, PS starts earlier than in regional and third level hospitals.

The elderly patient, often with scarce social, personal and financial resources[7], has received less attention at the end of life in terms of palliative care. Therefore, they may go to the emergency department as a symptom of family or personal neglect. The elderly constitute the largest percentage of patients requiring PS who die in the ED, which has already been described[8]. Lack of symptom control, distress and uncertainty lead patients and their families to the ED[8].

The low percentage of patients identified as CCP, MACA or in home care programs (PADES in Spanish) may suggest that the situation has not been detected. In more than 70% of the cases, the non-resuscitation order was included in the emergency medical orders; however, 94% of the patients did not have an advance directive document (AVD) upon arrival to the different EDs.

With regard to drugs, midazolam was used in 80% of patients, which implies adequate compliance with recommendations[7]. However, morphine stands out as the most prevalent, especially in less complex centres. As described above, PS is not the initial treatment in most patients upon arrival to the ED; in 70% of cases it is an attempt to offer a first opportunity to cure rather than palliate.

Most notably, second level hospitals start sedation earlier, while first level hospitals take a few more hours. The decision not to initiate or withdraw life support measures is considered in the ED in up to 80% of these patients as described by Le Conte et al.[10]. These important differences in the initial situation and management may determine the wide range observed in the time spent in the ED, in median around 24 hours, although

with great variability. The importance of palliation is now recognised as another medical act also in the ED[11]. However, up to now the training received by healthcare personnel in this area has been scarce and irregular.

Most patients who receive PS are not referred to other care facilities, but die in the ED. This implies a significant number of stays in services with a significant care overload and without the desirable privacy conditions for the patient and his or her family.

We consider that the main limitation of the study was not to make a comparison with other areas of the hospital other than the emergency department, as no data were available on PS and mortality in these areas.

With this study we provide a sample of end-of-life care in the ED, its adherence to therapeutic recommendations and its heterogeneity at the time of deciding to initiate sedation. Perhaps as a reflection of different approaches and rhythms according to the complexity of the centre. We are aware that withdrawing a treatment has the same ethical implications as not starting it, and that in an end-of-life situation the aim is to avoid unnecessary suffering for the patients. We hope to be a first step towards an in-depth reflection on the appropriateness of the therapeutic effort and respect for the will of the patient, since these are concepts that emergency professionals must know and handle on a regular basis.

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Addendum

They have participated in the study: Oriol Yuguero, Ana Vena, Xavier Ichart (Hospital Universitari Arnau de Vilanova); Carme Boque (Hospital Uni-versitario Joan XXIII), Ignasi Bardés (Hospital Universitari de Bellvitge); Silvia Lorcay Eva Lista (Hospital Universitari Parc Taulí); Silvia Flores (Hospital Santa Tecla); Josep Antoni Montiel (Hospital de la Santa Creu i Sant Pau); Montse Navarra (Hospital Comarcal Pallars); Anna Carreras (Hospital Universitari Germans Trias i Pujol), M. Jesús López Casanova (Hospital del Mar), Sònia Jiménez (Hospital Clínic), Emilia Cortés, Abraham Alonso and Jorge Pinzón (Hospital de Calella).

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