**Incidence and risk factors of prolonged grief in relatives of patients with terminal cancer in French palliative care units: the Fami-Life multicenter cohort study.**

Maité Garrouste-Orgeas MD, Véronique Marché, MD, Nicolas Pujol, PhD, Dominique Michel, MD, Adrien Evin, MD, Virginie Fossez-Diaz, MD, Ségolène Perruchio, MD, Anne Vanbésien, MD, Catherine Verlaine, MD, Laure Copel MD, Willeme Kaczmarek, MD, Laurence Birkui de Francqueville, MD, Véronique Michonneau-Gandon, MD, Emmanuel De Larivière, MD, Cécile Poupardin MD, Licia Touzet, MD, Virginie Guastella MD, Carmen Mathias, MD, Alaa Mhalla, MD, PhD, Guillaume Bouquet, MD, Bruno Richard, MD, PhD, Dominique Gracia, MD, Florent Bienfait, MD, Virginie Verliac, MD, Gaelle Ranchou, MD, Sylvie Kirsch, Msc, Cécile Flahault PhD, Ambre Loiodice, Msc, Sébastien Bailly, PharmD, PhD, Stéphane Ruckly, Msc, Jean-François Timsit MD, PhD.

**Supplement 2**

**Summary Pages**

**e-Table 1.** Recruitments of 26 centers 3-4

**e-Table 2**. Characteristics of eligible and excluded patients 5-6

**e-Table 3**. Characteristics of eligible families and excluded

relatives 7

**e-Table 4.** Univariable analysis of prolonged grief in relatives8-12

**e-Table 5.** Univariable analysis of post-traumatic stress disorders

in relatives 13-16

**e-Table 6**. Univariate analysis of improvement of HADS score

between Days 3-5 after admission and 6 months after patient’s death 17-20

**e-Table 1**. Recruitment period

| **Centres** | **First inclusion** | **Last inclusion** | **Assessed for eligibility** | **Eligible patients** | **Included patients** | **Relatives**  **included** | **Relatives of alive patients** | **Relatives’ refusal** | **Relatives lost to follow-up** | **Relatives analyzed** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2019/01/28 | 2020/01/30 | 168 | 90 | 77 | 118 | 17 | 6 | 18 | 77 |
| 2 | 2019/03/04 | 2019/03/24 | 93 | 2 | 2 | 2 | 0 | 0 | 0 | 2 |
| 3 | 2019/04/01 | 2020/01/04 | 125 | 48 | 47 | 59 | 1 | 7 | 7 | 44 |
| 4 | 2019/02/25 | 2020/01/25 | 126 | 21 | 21 | 36 | 0 | 2 | 7 | 27 |
| 5 | 2019/04/26 | 2019/07/08 | 130 | 8 | 6 | 10 | 2 | 0 | 0 | 8 |
| 6 | 2019/04/15 | 2020/02/04 | 302 | 17 | 17 | 31 | 0 | 3 | 1 | 27 |
| 7 | 2019/03/01 | 2020/01/30 | 113 | 12 | 10 | 23§ | 3 | 4 | 2 | 12 |
| 8 | 2019/03/06 | 2019/06/27 | 30 | 10 | 7 | 26|| | 9 | 0 | 4 | 12 |
| 9 | 2019/03/12 | 2019/11/22 | 123 | 19 | 18 | 26 | 1 | 1 | 2 | 22 |
| 10 | 2019/09/03 | 2020/02/06 | 226 | 68\* | 58 | 93¶ | 9 | 7 | 6 | 67 |
| 11 | 2019/02/19 | 2019/12/12 | 98 | 20 | 15 | 24 | 5 | 4 | 0 | 15 |
| 12 | 2019/03/14 | 2020/01/31 | 164 | 17 | 17 | 21 | 0 | 2 | 1 | 18 |
| 13 | 2019/02/27 | 2020/01/06 | 110 | 16 | 14 | 19 | 2 | 4 | 2 | 11 |
| 14 | 2019/04/15 | 2019/07/04 | 93 | 10 | 3 | 13 | 10 | 0 | 0 | 3 |
| 15 | 2019/03/05 | 2019/10/31 | 101 | 36 | 33 | 44 | 3 | 6 | 5 | 30 |
| 16 | 2019/04/02 | 2019/06/14 | 92 | 8 | 8 | 18 | 0 | 2 | 4 | 12 |
| 17 | 2019/03/19 | 2019/07/25 | 78 | 22 | 21 | 30 | 0 | 3 | 1 | 26 |
| 18 | 2019/03/15 | 2019/10/21 | 120 | 16 | 16 | 22 | 0 | 2 | 1 | 19 |
| 19 | 2019/02/22 | 2020/02/05 | 144 | 55† | 44 | 72 | 15 | 6 | 2 | 49 |
| 20 | 2019/03/19 | 2019/08/22 | 104 | 9 | 9 | 18 | 0 | 1 | 0 | 17 |
| 21 | 2019/03/27 | 2019/04/11 | 28 | 5 | 3 | 8 | 3 | 0 | 0 | 5 |
| 22 | 2019/01/31 | 2020/01/23 | 133 | 68 | 55 | 87 | 14 | 3 | 7 | 63 |
| 23 | 2019/05/09 | 2019/09/08 | 63 | 7 | 7 | 12 | 0 | 1 | 1 | 10 |
| 24 | 2019/06/05 | 2020/01/10 | 62 | 6 | 4 | 10 | 2 | 0 | 1 | 7 |
| 25 | 2019/04/04 | 2019/10/08 | 60 | 10 | 10 | 17 | 0 | 1 | 1 | 15 |
| 26 | 2019/07/27 | 2020/01/16 | 37 | 9 | 9 | 15 | 0 | 1 | 1 | 13 |
|  |  |  | 2923 | 609‡ | 531 | 854 | 96 | 66 | 74 | 611\*\* |

Violation protocol for patients: \* (n=3), † (n=1), ‡605 (609-4) patients were eligible

Violation protocol for relatives: § (n=2), || (n=1), ¶ (n=4). Of the 611\*\* relatives analyzed, 608 patients remained in the principal analysis due to the lack of IGC in 3 relatives.

**e-Table 2**. Characteristics of approached, excluded and eligible patients

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Approached**  **(n=609)** | **Excluded (n=78)** | **Eligible**  **(n=531)** | **Missing data** | **p-value** |
| Age, years, median (IQR) | 73 (66-83) | 75 (70-86) | 73 (65-82) | 2 | 0.02 |
| Female gender, % | 292 (48) | 38 (49.4) | 254 (47.8) | 2 | 0.80 |
| **Main symptoms at admission,** %  Alteration of general condition  Pain  Dyspnea  Anxiety  Confusion  Nausea, vomiting  Occlusion  Fever  Infection  Convulsions  Coma  Oropharyngeal congestion  Diarrhea | 458 (75.2)  374 (61.4)  151 (24.8)  228 (37.4)  196 (32.2)  87 (14.3)  64 (10.5)  19 (3.1)  47 (7.7)  16 (2.6)  18 (3)  39 (6.4)  23 (3.8) | 53 (67.9)  45 (57.7)  13 (16.7)  22 (28.2)  27 (34.6)  17 (21.8)  15 (19.2)  4 (5.1)  8 (10.3)  2 (2.6)  3 (3.8)  6 (7.7)  1 (1.3) | 405 (76.3)  329 (62)  138 (26)  206 (38.8)  169 (31.8)  70 (13.2)  49 (9.2)  15 (2.8)  39 (7.3)  14 (2.6)  15 (2.8)  33 (6.2)  22 (4.1) | 0 | 0.12  0.53  0.09  0.07  0.60  0.055  0.01  0.28  0.36  1  0.49  0.61  0.34 |
| **Nature of cancer,** %  Digestive  Pulmonary  Breast  Genitourinary  Brain  Skin and soft tissues  Hemopathy  Primary  Presence of metastasis | 206 (33.8)  140 (23)  42 (6.9)  109 (17.9)  34 (5.6)  49 (8)  14 (2.3)  10 (1.6)  491 (81.2) | 24 (30.8  15 (19.2)  5 (6.4)  18 (23.1)  5 (6.4)  5 (6.4)  0  78 (1.3)  74 (4) | 182 (34.3)  125 (23.5)  37 (7)  91 (17.1)  29 (5.5)  44 (8.3)  14 (2.6)  9 (1.7)  434 (81.7) | 0 | 0.60  0.47  1  0.20  0.79  0.82  0.23  1  0.34 |
| **Underlying diseases,** %  COPD  Cardiac  Renal  Hepatic  Neurologic | 98 (16.1)  186 (30.5)  54 (8.9)  29 (4.8)  53 (8.7) | 12 (15.4)  28 (35.9)  6 (7.7)  4 (5.1)  9 (11.5) | 86 (32.2)  158 (59.2)  48 (18)  25 (9.4)  44 (16.5) | 0 | 1  0.29  0.83  0.77  0.38 |
| **Previous place of life before admission,** %  Home  Nursing home  Acute hospital  Oncological follow-up care services  Geriatric follow-up care services  Neurological follow-up care services | 183 (30)  13 (2.1)  359 (58.9)  10 (1.6)  1 (0.2)  21 (3.4) | 26 (33.3)  2 (2.6)  47 (60.3)  0  0  1 (1.3) | 157 (29.6)  11 (2.1)  329 (62)  20 (3.8)  13 (2.4)  1 (0.2) | 0 | 0.50  0.67  0.90  0.62  1  0.50 |
| Duration of palliative care stay, days, Median (IQR) | 12 (7-21) | 13 (3-22) | 12 ([7-21) | 2 | 0.17 |
| Time interval between cancer diagnosis and admission, years, median (IQR) | 2 (2-4) | 3 (2-4) | 2 (1-4) | 8 | 0.37 |
| Decedents at palliative care discharge, % | 560 (92.1) | 29 (37.7) | 531 (100) | 0 | <.0001 |
| Death after CDS, % | 43 (7.7) | 0 | 43 (8.1) | 98 | 0.15 |
| Request of euthanasia by the patient, % | 54 (8.9) | 2 (2.6) | 52 (9.8) | 2 | 0.03 |
| Request of euthanasia by the family % | 16 (2.6) | 1 (1.3) | 15 (2.8) | 2 | 0.70 |
| Presence of a surrogate at admission, % | 421 (69.2) | 52 (67.5) | 369 (69.5) | 2 | 0.79 |
| Presence of advance directives, % | 56 (9.2) | 7 (9.1) | 49 (9.2) | 2 | 1 |

IQR=Inter Quartile Range; COPD=Chronic Obstructive Pulmonary Disease; CDS=Continuous Deep Sedation

**e-Table 3**. Characteristics of approached, excluded and eligible relatives

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | Relatives approached  (n=854) | Relatives  Excluded (n=243) | Relatives eligible  (n=611) | Missing data | p-value |
| Demographics |  |  |  |  |  |
| Age, median (IQR), y | 58 (46-68) | 61 (48-70) | 57 (45-67) | 94 | 0.008 |
| Women gender, % | 602 (70.6) | 164 (67.8) | 438 (71.7) | 2 | 0.28 |
| Relationship with the patient, % |  |  |  | 172 | 0.31 |
| Spouse/partner  Children  Parents  Other | 277 (36.1)  392 (51)  21 (2.7)  78 (10.2) | 76 (34.7)  107 (48.9)  7 (3.2)  29 (13.2) | 201 (36.6)  285 (51.9)  14 (2.6)  49 (8.9) |  |  |
| Occupation\*, %  Primary  Secondary  Tertiary  None | 6 (1.4)  19 (4.3)  388 (88)  28 (6.3) | 1 (0.9)  6 (5.5)  99 (90)  4 (3.6) | 5 (1.5)  13 (3.9)  289 (87.3)  24 (7.3) | 14 | 0.51 |
| Retired, % | 330 (81.5) | 107 (81.7) | 223 (81.4) | 0 | 1 |
| Educational level, %  Upper secondary education  High school  Technical college  Associate degree  Bachelor degree  Master degree | 79 (9.6)  128 (14.6)  75 (9.1)  141 (17.2)  179 (21.8)  218 (26.6) | 29 (12.9)  40 (17.9)  26 (11.6)  44 (19.6)  39 (17.4)  46 (20.5) | 50 (8.4)  88 (14.8)  49 (8.2)  97 (16.3)  140 (23.5)  179 (28.9) | 68 | 0.01 |
| Previous palliative care hospitalization for a closer relative, % | 184 (21.6) | 53 (21.9) | 131 (21.4) | 2 | 0.92 |
| Patient’s surrogate, % | 490 (57.4) | 144 (59.3) | 346 (56.6) | 0 | 0.49 |
| Primary caregiver, % | 528 (61.9) | 152 (62.8) | 376 (61.5) | 2 | 0.75 |
| Presence at home, %  Health-care worker  Life support person | 423 (49.5)  119 (13.9) | 115 (47.3)  37 (15.2) | 308 (50.4)  82 (13.4) | 0  0 | 0.45  0.51 |

IQR=Inter Quartile Range

\*Occupations were grouped onto agricultural (primary), industrial (secondary) or commercial or related to administration or human health or public action (tertiary)

**e-Table 4.** Univariable analysis of prolonged grief in relatives**.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables** | **ICG ≤ 25**  **N=409** | **ICG > 25**  **N=199** | **OR (95% CI)** | **p-value** |
| **CENTER** | | | | |
| Hospital, %  Private  University  General | 212 (51.8)  81 (19.8)  116 (28.4) | 79 (39.7)  52 (26.1)  68 (34.2) | 1  1.29 (0.55-2.99)  1.3 (0.51-3.34) | 0.77 |
| Number of beds > 15, % | 231 (56.5) | 77 (38.7) | 0.49 (0.25-0.98) | 0.046 |
| Number of senior physicians, % | 2 (2-3) | 2 (1-3) | 0.91 (0.71-1.18) | 0.44 |
| Number of junior physicians, % | 0 (0-1) | 0 (0-1) | 0.82 (0.48-1.4) | 0.45 |
| Patient-to-nurse ratio, day, median (IQR) | 5 (4-6) | 5 (4-6) | 1.15 (0.89-1.48) | 0.25 |
| Patient-to-nursing assistant ratio, day, median, (IQR) | 6 (5-8) | 5 (4-6) | 0.98 (0.91-1.05) | 0.55 |
| Presence of support group for family, % | 96 (23.5) | 55 (27.6) | 1.67 (0.8-3.51) | 0.16 |
| 24-hr visitation policies, % | 183 (44.7) | 121 (60.8) | 1.87 (0.9-3.88) | 0.08 |
| Family on site sleep, %  Dedicated room available  Bed into the patient room  Armchair into the patient room | 223 (54.5)  405 (99)  308 (75.3) | 77 (38.7)  191 (96)  164 (82.4) | 0.55 (0.31-0.97)  0.32 (0.08-1.29)  1.18 (0.42-3.28) | 0.04  0.11  0.72 |
| Pet visitation, % | 309 (75.6) | 136 (68.3) | 0.87 (0.43-1.76) | 0.68 |
| Presence of a support group for relatives during the stay, % | 10 (2.4) | 15 (7.5) | 2.82 (1-7.92) | 0.05 |
| Participation of relatives into care, % | 275 (67.2) | 144 (72.4) | 1.02 (0.49-2.14) | 0.94 |
| Information procedures, %  Formal meeting at admission  with a nurse  with a psychologist  Weekly meeting  Formal meeting after patient ‘death | 398 (97.3)  119 (29.1)  342 (83.6)  169 (41.3) | 191 (96)  60 (30.2)  163 (81.9)  108 (54.3) | 1.52 (0.4-5.78)  1.19 (0.63-2.27)  1.24 (0.55-2.82)  1.81 (1.02-3.22) | 0.53  0.58  0.59  0.04 |
| Hours of availability of the mortuary chamber, median, (IQR) | 8 (5-9) | 8 (5-9) | 1.02 (0.93-1.12) | 0.63 |
| Relatives authorized to prepare the body for funerals\*, % | 383 (93.6) | 168 (84.4) | 0.44 (0.2-0.96) | 0.04 |
| Mourning follow-up, %  Sending a condolence letter  Proposition of a follow-up with a psychologist  Proposition of a follow-up with volunteers  Presence a support grieving group  Another follow-up | 153 (37.4)  226 (70.2)  30 (9.3)  92 (22.5)  66 (20.5) | 92 (46.2)  135 (76.3)  14 (7.9)  53 (26.6)  28 (15.8) | 1.1.29 (0.57-2.94)  08 (0.58-2.01)  0.85 (0.15-4.97)  1.71 (0.81-3.61)  0.77 (0.32-1.9) | 0.79  0.50  0.82  0.15  0.55 |
| Delivery of a leaflet for children, % | 155 (37.9) | 58 (29.1) | 0.82 (0.4-1.69) | 0.58 |
| Delivery of an information leaflet at patient’ death, % | 272 (66.5) | 154 (77.4) | 1.8 (0.89-3.62) | 0.09 |
|  |  |  |  |  |
| **PATIENTS** | | | | |
| Gender, %  Female  Male | 205 (50.1)  204 (49.9) | 86 (43.2)  113 (56.8 | 1  1.29 (0.89-1.87) | 0.18 |
| Age, years | 75 (66-83) | 68 (6.-76) | 0.96 (0.95-0.98) | <.001 |
| Time interval between the diagnosis of the cancer and the Palliative Care unit admission, years, median (IQR) | 3 (1-5) | 2 (1-4) | 0.97 (0.92-1.02) | 0.2 |
| Type of cancer, %  Digestif  Genito-urinary  Lung  Primary  Breast  Hemopathy  Skin and soft tissues  Brain | 152 (37.2)  91 (22.2)  26 (6.4)  73 (17.8)  18 (4.4)  30 (7.3)  11 (2.7)  8 (2) | 58 (29.1)  47 (23.6)  14 (7)  30 (15.1)  19 (9.5)  21 (10.6)  6 (3)  4 (2) | 1  1.16 (0.65-20.7)  1.31 (0.79-2.18)  1.4 (0.35-5.63)  1.45 (0.66-3.15)  1.48 (0.47-4.66)  1.79 (0.89-3.59)  2.73 (1.21-6.17) | 0.36 |
| Admission symptoms, %  Respiratory  Pain  Sepsis  Digestive  Anxiety/psychology suffering  Neurologic | 113 (27.6)  251 (61.4)  39 (9.5)  102 (24.9)  148 (36.2)  143 (35) | 76 (38.2)  126 (63.3)  17 (8.5)  33 (16.6)  88 (44.2)  76 (38.2) | 1.77 (1.19-2.64)  1.17 (0.79-1.73)  0.85 (0.44-1.65)  0.64 (0.4-1.03)  1.5 (1-2.23)  1.13 (0.76-1.66) | 0.005  0.43  0.63  0.06  0.04  0.54 |
| Comorbid conditions, %  Respiratory  Cardiac  Renal  Hepatic  Neurologic | 61 (29.2)  129 (61.7)  34 (16.3)  25 (12)  37 (17.7) | 34 (38.6)  48 (54.5)  20 (22.7)  9 (10.2)  9 (10.2) | 1.52 (0.86-2.67)  0.66 (0.38-1.16)  1.49 (0.76-2.91)  0.82 (1.35-1.95)  0.52 (0.23-1.17) | 0.15  0.25  0.65  0.11  0.79 |
| Origin, %  Follow-up care services  Home  Acute care hospital | 136 (33.3)  225 (55)  48 (11.7) | 56 (38.1)  118 (59.3)  25 (12.6) | 1  0.62 (0.32-1.2)  0.95 (0.51-1.75) | 0.12 |
| Patient status, %  Single | 196 (47.9) | 68 (34.2) | 0.57 (0.39-0.85) | 0.005 |
| Time interval between admission and death, days, median (IQR) | 12 (7-20) | 13 (8-20) | 1 (0.98-1.02) | 0.89 |
| Death after continuous deep sedation, % | 24 (8.1) | 15 (10) | 1.07 (0.52-2.2) | 0.87 |
| Request of euthanasia by patient or family member, % | 49 (12) | 21 (10.6) | 0.83 (0.45-1.52) | 0.54 |
| Patient’s surrogate, % | 279 (68.2) | 147 (73.9) | 1.48 (0.96-2.27) | 0.07 |
| Presence of advanced directives, % | 43 (10.5) | 16 (8) | 0.82 (0.55-1.46) | 0.65 |
|  |  |  |  |  |
| **RELATIVES** | | | | |
| Gender, %  Male  Female | 129 (31.5)  280 (68.5) | 44 (22.1)  155 (77.9) | 1  1.56 (1.03-2.38) | 0.04 |
| Age, years, median (IQR) | 57 (46-67) | 57 (42-67) | 1 (0.99-1.01) | 0.82 |
| Relationship with the patient, %  Spouse/partner  Children  Parents  Other | 110 (30.6)  209 (58.1)  5 (1.4)  36 (10) | 89 (47.8)  89 (47.8)  9 (4.8)  13 (7) | 1  0.44 (0.29-0.65)  1.96 (0.59-6.57)  0.46 (0.22 -0.95) | 0.001 |
| Level of education equal or superior to bachelor, % | 238 (58.2) | 87 (43.7) | 0.6 0.41-0.87) | 0.008 |
| Previous palliative care hospitalization for a close relative, % | 89 (21.8) | 41 (20.6) | 0.95 (0.61-1.48) | 0.81 |
| Palliative care admission requested by relatives, % | 261 (63.8) | 134 (67.3) | 1.33 (0.9-1.98) | 0.15 |
| Occupation\*\*, %  None  Primary  Secondary  Tertiary | 16 (6.9)  4 (1.7)  7 (3)  204 (88.3) | 8 (8.1)  1 (1)  6 (6.1)  84 (84.4) | 1  0.47 (0.04-5.68)  1.18 (0.26-5.33)  0.88 (0.34-2.26) | 0.98 |
| Retired, % | 143 (82.7) | 79 (79.8) | 0.85 (0.44-1.67) | 0.65 |
| Patient’s surrogate, % | 216 (52.8) | 135 (67.8) | 1.75 (1.2-2.54) | 0.004 |
| Primary caregiver, % | 238 (58.2) | 135 (67.8) | 1.62 (1.11-2.38) | 0.01 |
| Presence at home, %  Health-care worker  Life support person | 208 (50.9)  65 (15.9) | 98 (49.2)  17 (8.5) | 0.84 (0.58-1.23)  0.51 (0.28-0.93) | 0.37  0.02 |
| Interview conducted during the lockdown (2020/15/03-2020/11/06) | 111 (27.1) | 36 (18.1) | 0.59 (0.37-0.95) | 0.03 |
| Between day3-day5  HADS score, median (IQR)  HAS score, median (IQR)  HAD score, median (IQR)  Symptoms of anxiety, %  Yes  Symptoms of depression, %  Yes | 15 (10-20)  9 (7-12)  6 (3-9)  220 (57)  113 (29.3) | 21 (16-26)  12 (10-16)  9 (6-12)  158 (81.4)  100 (51.5) | 1.12 (1.08-1.15)  1.2 (1.14-1.26)  1.17 (1.11-1.23)  3.19 (2.06-4.94)  2.53 (1.72-3.71) | <.001  <.001  <.001  <.001  <.001 |

ICG=Inventory complicated grief; OR=Odds Ratio; CI= Confidence Interval; HADS=Hospital Anxiety and Depression Score; HAS=Hospital Anxiety Score; HAD=Hospital Depression Score; IQR=Inter Quartile Range

\* The body preparation for funerals is done by the relatives immediately after death with nurses and nursing assistants (washing and dressing the body for funerals, and having the possibility to practice religious rite)

\*\*Sectors of activities are either agricultural (primary), industrial (secondary) or commercial or related to administration or human health or public action (tertiary)

**e-Table 5.** Univariable analysis of post-traumatic stress disorders in relatives.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables** | **IES-R**  **≤22** | **IES-R**  **> 22** | **OR (95% CI)** | **p-value** |
| **CENTERS** | | | | |
| Hospital, %  Private  University  General | 141 (49.6)  65 (22.9)  78 (27.5) | 148 (45.8)  68 (21.1)  107 (33.1) | 1  0.99 (0.47-2.09)  1.29 (0.68-2.43) | 0.59 |
| Number of beds > 15, median (IQR) | 156 (54.9)) | 150 (46.5) | 0.64 (1.37-1.12) | 0.10 |
| Number of senior physicians, % | 2 (2-3) | 2 (1.6-3) | 0.95 (0.79-1.15) | 0.57 |
| Number of junior physicians, % | 0 (0-1) | 0 (0-1) | 1.03 (0.67-1.58) | 0.88 |
| Patient-to-nurse ratio, day, median (IQR) | 4.7 (4-5) | 5 (4-6) | 1.18 (0.98-1.42) | 0.07 |
| Patient-to-nursing assistant ratio, day, median (IQR) | 6 (5-7.8) | 6 (5-7) | 1.05 (0.91-1.21) | 0.46 |
| Presence of support group for families, (%) | 55 (25.3) | 95 (26.2) | 1.05 (0.71-1.55) | 0.814 |
| 24-hr visitation policies, % | 130 (45.8) | 175 (54.2) | 1.55 (0.88-2.73)) | 0.10 |
| Family on site sleep, %  Dedicated room available  Bed into the patient room  Armchair into the patient room | 159 (56)  278 (97.9)  223 (78.5) | 141 (43.7)  317 (98.1)  248 (76.8) | 0.6 (0.42-0.85)  1.11 (0.3-4.09)  0.93 (0.43-2) | 0.004  0.87  0.82 |
| Pet visitation, % | 213 (75) | 231 (71.5) | 0.82 (0.47-1.45) | 0.47 |
| Presence of a support group for relatives during the stay, % | 64 (22.5) | 86 (26.6) | 1.37 (0.75-2.53) | 0.28 |
| Participation of relatives into care, % | 204 (71.8) | 215 (66.6) | 0.8 (0.44-1.44) | 0.41 |
| Information procedures, %  Formal meeting at admission  with a nurse  with a psychologist  Weekly meeting  Formal meeting after patient ‘death | 277 (97.5)  86 (30.3)  234 (82.4)  115 (40.5) | 311 (96.3)  94 (29.1)  270 (83.6)  161 (49.8) | 0.78 (0.25-2.43)  0.99 (0.59-1.65)  1.16 (0.59-2.3)  1.5 (0.94-2.38) | 0.66  0.95  0.64  0.08 |
| Hours of availability of the mortuary chamber, median (IQR) | 8 (5-9) | 8 (5-9) | 1 (0.93-1.08) | 0.89 |
| Relatives authorized to prepare the body for funerals\*, (%) | 268 (94.4) | 282 (87.3) | 0.43 (0.22-0.85) | 0.017 |
| Mourning follow-up, %  Sending a condolence letter  Proposition of a follow-up with a psychologist  Proposition of a follow-up with volunteers  Presence a support grieving group  Another follow-up | 105 (37)  156 (67.8)  24 (10.4)  66 (23.2)  50 (21.7) | 140 (43.3)  205 (76.5)  20 (7.5)  78 (24.1)  43 (16) | 1.34 (0.75-2.39)  1.47 (0.74-2.92)  0.65 (0.16-2.54)  1.04 (0.56-1.93)  0.75 (0.35-1.62) | 0.28  0.23  0.46  0.89  0.23 |
| Delivery of a leaflet for children, % | 111 (39.1) | 101 (31.3) | 0.7 (0.4-1.23) | 0.17 |
| Delivery of an information leaflet at patient’ death, % | 190 (66.9) | 235 (72.8) | 1.34 (0.75-2.39) | 0.28 |
| **PATIENTS** | | | | |
|  | **N=284** | **N=323** |  |  |
| Gender, %  Female  Male | 140 (49.3)  144 (50.7) | 150 (46.5)  173 (53.6) | 1  1.11 (0.78-1.56) | 0.56 |
| Age, years, median (IQR) | 76 (66-85) | 69 (61-79) | 0.97 (0.95-0.98) | <.001 |
| Time interval between the cancer diagnosis and the Palliative Care unit admission, years, median, (IQR) | 2 (1-2) | 3 (1-4) | 0.98 (0.93-1.02) | 0.31 |
| Type of cancer, %  Digestif  Genito-urinary  Lung  Primary  Breast  Hemopathy  Skin and soft tissues  Brain | 110 (38.7)  44 (15.5)  62 (21.8)  6 (2.1)  18 (6.3)  10 (3.5)  24 (8.5)  10 (3.5) | 100 (31)  59 (18.3)  75 (23.2)  6 (1.9)  22 (6.8)  6 (1.9)  28 (8.7)  27 (8.4) | 1  1.58 (0.95-2.65)  1.37 (0.86-2.18)  1.08 (0.3-3.85)  1.44 (0.7-2.96)  0.76 (0.25-2.33)  1.33 (0.7-2.56)  2.84 (1.24-6.51) | 0.25 |
| Admission symptoms, %  Respiratory  Pain  Sepsis  Digestive  Anxiety/psychology suffering  Neurologic | 77 (27.1)  168 (59.2)  29 (10.2)  75 (26.4)  91 (32)  96 (33.8) | 111 (34.4)  210 (65)  28 (8.7)  60 (18.6)  145 (44.9)  122 (37.8) | 1.41 (0.96-2.05)  1.35 (0.94-1.94)  0.78 (0.43-1.42)  0.62 (0.41-0.95)  1.7 (1.18-2.45)  1.2 (0.83-1.71) | 0.08  0.10  0.41  0.03  0.004  0.33 |
| Comorbid conditions, %  Respiratory  Cardiac  Renal  Hepatic  Neurologic | 42 (29.2)  94 (65.3)  28 (19.4)  16 (11.1)  18 (12.5) | 53 (35.1)  83 (55)  26 (17.2)  18 (11.9)  26 (17.2) | 1.3 (0.77-2.2)  0.65 (0.4-1.08)  0.83 (0.44-1.57)  1.11 (0.51-2.41)  1.42 (0.71-2.82) | 0.32  0.09  0.57  0.78  0.31 |
| Origin, %  Follow-up care services  Home  Acute care hospital | 32 (11.3)  95 (33.5)  157 (55.3) | 41 (12.7)  98 (30.3)  184 (57) | 1  0.71 (0.39-1.3)  0.84 (0.47-1.49) | 0.47 |
| Patient status, %  Single | 138 (48.6) | 126 (39) | 0.68 (0.48-0.96) | 0.03 |
| Time interval between admission and death, days, median (IQR) | 11.5 (7-19) | 12 (7-19) | 1 (0.98-1.01) | 0.63 |
| Death after continuous deep sedation, % | 20 (7) | 31 (9.6) | 1.3 (0.68-2.48) | 0.42 |
| Request of euthanasia by patient or family member, % | 38 (13.4) | 32 (9.9) | 0.73 (0.43-1.27) | 0.26 |
| Patient’s surrogate, % | 185 (65.1) | 241 (74.6) | 1.66 (1.13-2.44) | 0.01 |
| Presence of advanced directives, % | 32 (11.3) | 27 (8.4) | 0.75 (0.42-1.35) | 0.34 |
|  |  |  |  |  |
| **RELATIVES** | | | | |
|  | **N=284** | **N=323** |  |  |
| Gender, %  Male  Female | 108 (38)  176 (62) | 65 (20.1)  258 (79.9) | 1  2.46 (1.68-3.61) | <.001 |
| Age, years, median (IQR) | 57 (47-67) | 57 (41-67) | 0.99 (0.98-1) | 0.12 |
| Relationship with the patient, %  Spouse/partner  Children  Parents  Other | 70 (29)  141 (58.5)  5 (2.1)  25 (10.4) | 129 (42.4)  142 (46.7)  9 (3)  24 (7.9) | 1  0.54 (0.37-0.8)  0.96 (0.29-3.17)  0.52 (0.27-1) | 0.014 |
| Level of education equal or superior to bachelor, % | 165 (58.1) | 160 (49.5) | 0.73 (0.52-1.03) | 0.075 |
| Previous palliative care hospitalization for a close relative, % | 59 (20.8) | 72 (22.3) | 1.07 (0.71-1.61) | 0.73 |
| Palliative care unit admission requested by relatives, % | 179 (63) | 215 (66.6) | 1.23 (0.86-1.75) | 0.26 |
| Occupation\*\*, %  None  Primary  Secondary  Tertiary | 9 (5.7)  2 (1.3)  6 (3.8)  142 (89.3) | 15 (8.8)  3 (1.8)  7 (4.1)  146 (85.4) | 1  0.87 (0.11-6.8)  0.61 (0.14-2.59)  0.6 (0.25-1.48) | 0.713 |
| Retired, % | 105 (87.5) | 116 (76.8) | 0.47 (0.23-0.93) | 0.03 |
| Patient’s surrogate, % | 147 (51.8) | 196 (60.7) | 1.48 (1.05-2.08) | 0.02 |
| Primary caregiver, % | 163 (57.4) | 210 (65) | 1.44 (1.02-2.04) | 0.04 |
| Presence at home, %  Health-care worker  Life support person | 146 (51.4)  42 (14.8) | 159 (49.2)  39 (12.1) | 0.89 (0.63-1.26)  0.79 (0.48-1.3) | 0.51  0.35 |
| Interview conducted during the lockdown (2020/15/03-2020/11/06) | 74 (26.1) | 72 (22.3) | 0.79 (0.52-1.2) | 0.27 |
| Between day3-day5  HADS score, median (IQR)  HAS score, median (IQR)  HAD score, median (IQR)  Symptoms of anxiety, %  Yes  Symptoms of depression, %  Yes | 14 (9-20)  8 (6-11)  5 (3-9)  134 (49.6)  70 (25.9) | 20 (14-25)  12 (9-15)  8 (5-11)  244 (78.7)  143 (46.1) | 1.13 (1.1-1.16)  1.23 (0.18-1.3)  1.17 (1.11-1.22)  3.67 (2.51-5.35)  2.38 (1.64-3.44) | <.001  <.001  <.001  <.001  <.001 |

IES-R=Impact of Event Scale-Revised, OR=Odds Ratio; CI=Confidence Interval; HADS=Hospital Anxiety and Depression Score; HAS=Hospital Anxiety Score; HAD=Hospital Depression Score, IQR=Inter Quartile Range

\*The body preparation for funerals is performed by the relatives immediately after death, with nurses and nursing assistants (washing the body, dressing the deceased and having the possibility to practice religious rite)

\*\*Sectors of activities are either agricultural (primary), industrial (secondary) or commercial or related to administration or human health or public action (tertiary)

**e-Table 6**. Univariate analysis of improvement of HADS score between J3-J5 after admission and 6 months after patient’s death.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variables** | **No improvement of HADS score**  **N=217** | **Improvement of HADS score**  **N=362** | **OR (95% CI)** | **p-value** |
| **CENTERS** | | | | |
| Hospital, %  Private  University  General | 103 (47.5)  49 (22.6)  65 (30) | 173 (47.8)  81 (22.4)  108 (29.8) | 1  0.98 (0.63-1.52)  1 (0.67-1.49) | 0.99 |
| Number of beds > 15, % |  |  |  |  |
| Number of senior physicians, % | 2 (2-3) | 2 (1.6-3) | 1 (0.89-1.12) | 0.96 |
| Number of junior physicians, % | 0 (0-1) | 0 (0-1) | 1 (0.72-1.37) | 0.97 |
| Patient-to-nurse ratio, day, median (IQR) | 5(4-6) | 5 (4-6) | 1.06 (0.93-1.2) | 0.40 |
| Patient-to-nursing assistant ratio, day, median (IQR) | 6 (5-7.5) | 6 (5-7) | 0.99 (0.91-1.08) | 0.87 |
| Presence of support group for families, n (%) | 64 (22.5) | 86 (26.6) | 1.37 (0.75-2.53) | 0.28 |
| 24-hr visitation policies, % | 24 (12 ; 24) | 24 (12 ; 24) | 1.01 (0.98-1.03) | 0.56 |
| Family on site sleep, %  Dedicated room available  Bed into the patient room  Armchair into the patient room | 111 (51.2)  212 (97.7)  163 (75.1) | 168 (46.4)  355 (98.1)  284 (78.5) | 0.82 (0.58-1.16)  1.23 (0.37-4.09)  1.21 (0.81-1.82) | 0.27  0.73  0.35 |
| Pet visitation, % | 155 (71.4) | 266 (73.5) | 1.11 (0.75-1.63) | 0.60 |
| Presence of a support group for relatives during the stay, % | 55 (25.3) | 95 (26.2) | 1.05 (0.71-1.55) | 0.81 |
| Participation of relatives into care, % | 150 (69.1) | 247 (68.2) | 0.95 (0.65-1.38) | 0.78 |
| Information procedures, %  Formal meeting at admission  with a nurse  with a psychologist  Weekly meeting  Formal meeting after patient ‘death | 211 (97.2)  65 (30)  181 (83.4)  94 (43.3) | 349 (96.4)  103 (28.5)  299 (82.6)  175 (48.3) | 0.76 (0.27-2.12)  0.93 (0.64-1.36)  0.94 (0.59-1.49)  1.33 (0.88-1.99) | 0.60  0.70  0.77  0.25 |
| Hours of availability of the mortuary chamber, median (IQR) | 8 (5-9) | 8 (5-9) | 1.02 (0.97-1.08) | 0.48 |
| Relatives authorized to prepare the body for funerals\*, n (%) | 195 (89.9) | 328 (90.6) | 1.08 (0.6-1.93) | 0.81 |
| Mourning follow-up, %  Sending a condolence letter  Proposition of a follow-up with a psychologist  Proposition of a follow-up with volunteers  Presence a support grieving group  Another follow-up | 83 (38.2)  128 (74)  15 (8.7)  47 (21.7)  30 (17.3) | 150 (41.4)  220 (72.8)  29 (9.6)  97 (26.8)  53 (17.5) | 1.14 (0.8-1.63)  0.95 (0.61-1.47)  1.1 (0.56-2.17)  1.33 (0.88-1.99)  1.01 (0.61-1.68) | 0.45  0.81  0.77  0.17  0.96 |
| Delivery of a leaflet for children, % | 77 (35.5) | 120 (33.1) | 0.89 (0.62-1.28) | 0.54 |
| Delivery of an information leaflet at patient’ death, % | 151 (69.6) | 261 (72.1) | 1.13 (0.78-1.65) | 0.52 |
|  |  |  |  |  |
| **PATIENTS** | | | | |
|  |  |  |  |  |
| Gender, %  Female  Male | 106 (48.8)  111 (51.2) | 167 (46.1)  195 (53.9) | 1  1.12 (0.79-1.58) | 0.52 |
| Age, years, median (IQR) | 73 (64-82) | 71 (64-81) | 0.99 (0.98-1) | 0.11 |
| Time interval between the cancer diagnosis and the Palliative Care unit admission, years, median (IQR) | 2 (1-4) | 2 (1-5) | 1.03 (0.98-1.08) | 0.23 |
| Type of cancer, %  Digestif  Genito-urinary  Lung  Primary  Breast  Hemopathy  Skin and soft tissues  Brain | 78 (35.9)  44 (20.3)  45 (20.7)  5 (2.3)  11 (5.1)  5 (2.3)  19 (8.8)  10 (4.6) | 124 (34.3)  50 (13.8)  89 (24.6)  7 (1.9)  25 (6.9)  10 (2.8)  31 (8.6)  26 (7.2) | 1  0.72 (0.43-1.2)  1.24 (0.78-1.98)  0.88 (0.26-3)  1.43 (0.66-3.12)  1.27 (0.41-3.95)  1.02 (0.53-1.96)  1.63 (0.73-3.64) | 0.50 |
| Admission symptoms, %  Respiratory  Pain  Sepsis  Digestive  Anxiety/psychology suffering  Neurologic | 67 (30.9)  138 (63.6)  19 (8.8)  49 (22.6)  69 (31.8)  82 (37.8) | 112 (30.9)  222 (61.3)  34 (9.4)  78 (21.5)  156 (43.1)  126 (43.1) | 1.01 (0.69-1.46)  0.91 (0.64-1.3)  1.08 (0.59-1.97)  0.94 (0.62-1.42)  1.62 (1.13-2.32)  0.88 (0.61-1.26) | 0.97  0.59  0.80  0.77  0.009  0.47 |
| Comorbid conditions, %  Respiratory  Cardiac  Renal  Hepatic  Neurologic | 41 (37.6)  65 (59.6)  16 (14.7)  12 (11)  16 (14.7) | 53 (30.3)  108 (61.7)  34 (19.4)  20 (11.4)  27 (15.4) | 0.72 (0.03-18.92)  1.09 (0.05-26))  1.4 (0.01-94.3)  1.04 (0.01-143.2)  1.06 (0.01-81.9) | 0.42  0.78  0.49  0.93  0.89 |
| Origin, %  Follow-up care services  Home  Acute care hospital | 22 (10.1)  64 (29.5  131 (60.4) | 45 (12.4)  119 (32.9)  198 (54.7) | 1  0.89 (0.48-1.63)  0.72 (0.41-1.29) | 0.39 |
| Patient status, %  Single | 98 (45.2) | 149 (41.2) | 0.85 (0.6-1.2) | 0.35 |
| Time interval between admission and death, days, median (IQR) | 11 (7-20) | 12 (7-20) | 0.99 (0.98-1.01) | 0.40 |
| Death after continuous deep sedation, % | 17 (7.8) | 34 (9.4) | 1.23 (0.66-2.3) | 0.51 |
| Request of euthanasia by patient or family member, % | 23 (10.6) | 43 (11.9) | 1.13 (0.65-1.97) | 0.65 |
| Patient’s surrogate, % | 150 (69.1) | 257 (71) | 1.1 (0.75-1.6) | 0.62 |
| Presence of advanced directives, % | 20 (9.2) | 35 (9.7) | 1.06 (0.59-1.91) | 0.85 |
|  |  |  |  |  |
| **RELATIVES** | | | | |
|  |  |  |  |  |
| Gender, %  Male  Female | 67 (30.9)  150 (69.1) | 94 (26)  268 (74) | 1  1.27 (0.87-1.86) | 0.21 |
| Age, years, median (IQR) | 58 (46-67) | 56 (45-67) | 1 (0.99-1.01) | 0.91 |
| Relationship with the patient, %  Spouse/partner  Children  Parents  Other | 65 (34)  105 (55)  3 (1.6)  18 (9.4) | 127 (38.6)  163 (49.5)  10 (3)  29 (8.8) | 1  0.79 (0.06-9.74)  1.71 (0-913)  0.82 (0.01-59.4) | 0.65 |
| Level of education equal or superior to bachelor, % | 124 (57.1) | 183 (50.6) | 0.76 (0.54-1.08) | 0.12 |
| Previous palliative care hospitalization for a close relative, % | 42 (19.4) | 84 (23.2) | 1.26 (0.82-1.92) | 0.28 |
| Palliative care unit admission requested by relatives, % | 146 (67.3) | 224 (61.9) | 0.78 (0.55-1.12) | 0.18 |
| Occupation\*\*, %  None  Primary  Secondary  Tertiary | 9 (8)  0 (0)  5 (4.4)  99 (87.6) | 14 (6.8)  5 (2.4)  8 (3.9)  178 (86.8) |  | NC |
| Retired, % | 80 (76.9) | 131 (85.6) | 1.79 (0.94-3.41) | 0.07 |
| Patient’s surrogate, % | 115 (53) | 214 (59.1) | 1.28 (0.9-1.8) | 0.16 |
| Primary caregiver, % | 128 (59) | 231 (63.8) | 1.22 (0.86-1.74) | 0.25 |
| Presence at home, %  Health-care worker  Life support person | 99 (45.6)  31 (14.3) | 193 (53.3)  48 (13.3) | 1.36 (0.96-1.92)  0.91 (0.55-1.49) | 0.08  0.69 |
| Interview conducted during the lockdown (2020/15/03-2020/11/06) | 50 23) | 90 (24.9) | 1.1 (0.73-1.65) | 0.65 |

HADS=Hospital Anxiety and Depression; OR=Odds Ratio; CI=Confidence Interval; IQR=Inter Quartile Range; NC=Non Convergent

\*The body preparation for funerals is performed by the relatives immediately after death, with nurses and nursing assistants (washing the body, dressing the deceased and having the possibility to practice religious rite)

\*\*Sectors of activities are either agricultural (primary), industrial (secondary) or commercial or related to administration or human health or public action (tertiary)