**Optimal timing for hospice-shared care in terminal cancer patients**

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**Supplementary information:**

**Supplementary table S1. Comparisons of the basic characteristics between groups**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | (A) |  |  |  | (B) |  |  |
|  | “HSC alone” group  (n= 523) | “UC” group  (n= 523) | p-value |  | “HSC+HHC” group  (n= 334) | “UC” group  (n= 334) | p-value |
| Gender\_male | 347 (66.3%) | 332 (63.5%) | 0.312 |  | 203 (60.8%) | 192 (57.5%) | 0.476 |
| Age, years | 67.1 ± 13.3 | 68.2 ± 13.0 | 0.181 |  | 68.1 ± 13.4 | 67.4 ± 13.4 | 0.534 |
| Income\_300-1,000 USD per month | 145 (27.7%) | 154 (29.4%) | 0.435 |  | 114 (34.1%) | 92 (27.5%) | 0.815 |
| CCI, points | 10.4 ± 4.4 | 10.0 ± 4.7 | 0.097 |  | 11.2 ± 4.5 | 11.0 ± 4.0 | 0.943 |
| Hospital level\_medical center | 284 (54.3%) | 284 (54.3%) | 1.000 |  | 204 (61.1%) | 205 (61.4%) | 0.960 |
| Hospital area\_northern area | 220 (42.1%) | 213 (40.7%) | 0.830 |  | 121 (36.2%) | 134 (40.1%) | 0.918 |
| Hospice bed density, % \* | 0.3 ± 0.5 | 0.3 ± 0.6 | 0.731 |  | 0.4 ± 0.6 | 0.4 ± 0.8 | 0.412 |

**Note:** \*defined as the percentage of hospice beds relative to each hospital's annual total cancer deaths. The categorical variables and continuous variables were presented as n (%) and mean ± standard deviation. We used the binominal generalized linear mixed-effects model for comparing the categorical variables and the generalized linear mixed-effects model for comparing the continuous variables with a normal distribution. In these models, the hospital attributes and death year were placed in the random-effects model for control.

**Abbreviations:** CCI = Charlson Comorbidity Index, HHC= home-based or hospital-based hospice care, HSC = hospice shared care, UC = usual care, USD = United States dollar

**Supplementary table S2. Comparisons of the QOC between groups**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **(A)** |  |  |  | **(B)** |  |  |
|  | **“HSC alone” group**  **(n= 523)** | **“UC” group**  **(n= 523)** | **AOR/ARR (95%CI)** |  | **“HSC+HHC” group**  **(n= 334)** | **“UC” group**  **(n= 334)** | **AOR/ARR (95%CI)** |
| **Total QOC scores** | 2.8 ± 1.2 | 2.8 ± 1.4 | 1.74 (0.87-3.47) |  | 2.7 ± 1.2 | 2.9 ± 1.3 | 0.8 (1.02-0.66)\* |
| **With emergency room visits** | 292 (55.8%) | 339 (64.8%) | 0.62 (0.19-18)\*\* |  | 147 (44%) | 180 (53.9%) | 0.61 (0.18-19.14)\*\* |
| **With hospitalization** | 408 (78.0%) | 428 (81.8%) | 0.78 (0.57-1.06) |  | 302 (90.4%) | 292 (87.4%) | 1.41 (0.86-2.33) |
| **With ICU admission** | 121 (23.1%) | 179 (34.2%) | 0.56 (0.42-0.74)\*\*\* |  | 60 (18.0%) | 125 (37.4%) | 0.34 (0.23-0.5)\*\*\* |
| **Receiving chemotherapy** | 31 (5.9%) | 65 (12.4%) | 0.39 (0.25-0.61)\*\*\* |  | 4 (1.2%) | 51 (15.3%) | 0.08 (0.03-0.18)\*\*\* |
| **With hyospitalization≧14 days** | 321 (61.4%) | 134 (25.6%) | 4.67 (3.57-6.12)\*\*\* |  | 199 (59.6%) | 143 (42.8%) | 2.01 (1.47-2.76)\*\*\* |
| **Death in the hospital** | 295 (56.4%) | 307 (58.7%) | 0.92 (0.72-1.19) |  | 197 (59.0%) | 191 (57.2%) | 1.06 (0.78-1.46) |

**Note:** Categorical variables and continuous variables were presented as n (%) and mean± standard deviation. The categorical variables were compared using the binominal generalized linear mixed model test. The linear mixed model test and the gamma generalized linear mixed model test were used to compare the continuous variables with normal distribution and abnormal distribution. In these models, the death year and hospital attributes were placed in the random-effects model for control.

**\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001**

**Abbreviations:** AOR = adjusted odds ratio, ARR = adjusted relative ratio, CCI = Charlson Comorbidity Index, CI = confidence interval,

HHC= home-based or hospital-based hospice care, HSC = hospice shared care, ICU = intensive care unit, QOC= quality of care, UC= usual care, USD= United States dollar

**Supplementary figure S1. Comparisons of the daily medical expenses after receiving HSC in subgroups categorized by survival periods**

**Note:** \* p < 0.05; \*\*\* p < 0.001

**Abbreviations:** HSC = hospice shared care, UC= usual care, USD= United States dollar

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**Supplementary figure S2. Comparisons of the total medical expenses after receiving HSC in groups categorized by hospice care types**

**Note:** The medical expenses, with the unit of United States dollar, were presented as mean and compared using the log-link function of the gamma generalized linear mixed-effects model. In this model, the hospital attributes and death year were placed in the random-effects model for control. \*\*\* p < 0.001

**Abbreviations:** AMD = adjusted mean difference, HHC= home-based or hospital-based hospice care, HSC = hospice shared care, USD= United States dollar

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