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LETTER TO THE EDITOR

Characteristics and course of patients with advanced hematologic malignancies receiving specialized inpatient palliative care at a German university hospital

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Dear Editor,

Palliative care represents an established component in the management of advanced solid tumors (ST) [1, 2]. In contrast, the role of palliative care in patients with hematologic malignancies (HM) is not well defined. However, available data indicate that individuals with HM receive palliative care less frequently and later in the course of disease than their counterparts with ST [3–7].

To shed more light on characteristics and course of patients with HM receiving specialized inpatient palliative care and to detect possible differences in comparison with individuals with ST, we conducted an analysis comprising 1636 cancer patients who had been treated at the palliative care unit of the Department for Palliative Medicine of the University Hospital Cologne between 2010 and 2014 (admission after January 1, 2010, discharge or death before December 31, 2014). Among those, 159 (9.7%) had HM and 1474 (90.1%) had ST (Table 1). The ratio between patients with HM and patients with ST was thus comparable with previous studies. An analysis from the US including 48.147 cancer patients who had been referred to a hospice network reported a proportion of 7.3% for individuals with HM [8]. A study comprising patients that had been treated at a German palliative care unit indicated a HM rate of 14.2% [9].

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Gender distribution and median age in the present study were similar for patients with HM and patients with ST (male patients: 52.8% vs 51.7%; median age: 68 years vs 66 years). The overall death rate was higher for individuals with HM (84.3% vs 65.8%; $p < 0.0001$). The proportion of stays that ended with the patient's death was also greater for individuals with HM (78.8% vs 58.0%; $p < 0.0001$). In addition, patients with HM were more likely to die within 3 (34.7% vs 18.9%; $p < 0.0001$), 7 (56.5% vs 33.7%; $p < 0.0001$), and 14 days (70.0% vs 47.6%; $p < 0.0001$) after admission (Table 1). Similarly, the study from the US using the database of a hospice network revealed an increased rate of deaths for patients with HM within 24 h and 7 days after initiation of hospice care [8]. Reasons for the increased rate of early deaths among individuals with HM have been identified only partially. However, it has been demonstrated that the proportion of individuals receiving chemotherapy, transfusions, renal replacement therapy, and other interventions within the last month of life was higher for patients with HM than for patients with ST [3–5]. The prolonged execution of such procedures likely resulted in a delayed implementation of palliative care. Differences in attitudes toward end-of-life care between HM and ST specialists and the difficult predictability of the course of disease in HM may also represent important causes for the late initiation of palliative care in patients with HM [10].

Taken together, the results of the present study indicate that patients with HM receive specialized inpatient palliative care more closely to death than patients with ST. Additional analyses are necessary to better understand the reasons for this finding and subsequently optimize palliative care in individuals with HM.

Table 1 Characteristics and course of patients with hematologic malignancies and solid tumors (chi-square test was used to compare patients with HM and ST in terms of overall death rates and death rates at day 3, day 7, and day 14 after admission to the palliative care unit. Odds ratios (OR) were calculated using a 2 × 2 contingency table)

	Hematologic malignancies	Solid tumors	*p* value, OR (95%-CI)
Number of patients (n)	159	1474	
Proportion of all cancer patients* (%)	9.7%	90.1%	
Male patients (%)	84/159 (52.8%)	762/1474 (51.7%)	
Female patients (%)	75/159 (47.2%)	712/1474 (48.3%)	
Median age (years)	68 (range 19–90)	66 (range 20–98)	
Number of stays (*n*)	170	1672	
Median duration of stays** (days)	5 days (range 0–46)	9 days (range 0–81)	
Subgroups (%)	MDS/AML/ALL 52/159 (32.7%) Aggressive NHL 40/159 (25.2%) MM 35/159 (22.0%) Indolent NHL 23/159 (14.7%) CML/CMMoL 7/159 (4.4%) HL 1/159 (0.6%) Others 1/159 (0.6%)	GI cancers 420/1474 (28.5%) Thoracic cancers 363/1474 (24.6%) Gynecologic cancers, breast cancer 212/1474 (14.4%) Genitourinary cancers 155/1474 (10.5%) CNS cancers 48/1474 (3.3%) Skin cancers 93/1474 (6.3%) Head and neck cancers, ENT cancers 49/1474 (3.3%) Others 134/1474 (9.1%)	
Overall death rate (%)	134/159 (84.3%)	970/1474 (65.8%)	< 0.0001, 2.875 (1.973–4.236)
Stays ending with death (%)	134/170 (78.8%)	970/1672 (58.0%)	< 0.0001, 2.694 (1.841–3.941)
Stays ending with death within			
3 days (%)	59/170 (34.7%)	316/1672 (18.9%)	< 0.0001, 2.281 (1.626–3.200)
7 days (%)	96/170 (56.5%)	564/1672 (33.7%)	< 0.0001, 3.846 (2.799–5.285)
14 days (%)	119/170 (70.0%)	796/1672 (47.6%)	< 0.0001, 4.901 (3.493–6.877)
Death rates for subgroups (%)	MDS/AML/ALL 45/52 (86.5%) Aggressive NHL 36/40 (90.0%) MM 28/35 (80.0%) Indolent NHL 17/23 (73.9%) CML/CMMoL 7/7 (100.0%) HL 0/1(0.0%) Others 1/1 (100.0%)	GI cancers 272/420 (64.8%) Thoracic cancers 261/363 (70.9%) Gynecologic cancers, breast cancer 126/212 (59.4%) Genitourinary cancers 111/155 (71.6%) CNS cancers 25/48 (52.1%) Skin cancers 52/93 (55.9%) Head and neck cancers, ENT cancers 39/49 (79.6%) Others 84/134 (62.9%)	

*3 patients (0.2%) with unspecified malignancies were not included in the analyses and comparisons

**0 days of stay, patient died or was discharged at the day of admission

MDS myelodysplastic syndrome, *AML* acute myeloid leukemia, *ALL* acute lymphoblastic leukemia, *NHL* non-Hodgkin lymphoma, *MM* multiple myeloma, *CML* chronic myeloid leukemia, *CMMoL* chronic myelomonocytic leukemia, *HL* Hodgkin lymphoma, *GI* gastrointestinal, *CNS* central nervous system, *ENT* ear, nose, and throat, *OR* odds ratio

Compliance with ethical standards

Disclosures The authors declare that they have no conflict of interest.

Ethical approval Given the non-interventional retrospective nature of the study, no ethical approval for its conduct was necessary according to the policy of the ethics committee of the Faculty of Medicine of the University of Cologne. For the same reason, no informed consent had to be obtained from the included patients.

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