

Does Marital Status Influence Levels of Anxiety and Depression Before Palliative Radiotherapy?

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Abstract. *Background/Aim:* To evaluate whether or not single patients report increased levels of anxiety and depression, compared to married or partnered patients scheduled to receive palliative radiotherapy. In principle, different levels of social support might cause such disparities. *Patients and Methods:* Retrospective comparison of two groups of patients (28% single, overall 100 patients), who scored their symptoms before palliative radiotherapy with the Edmonton symptom assessment system (ESAS). *Results:* The two groups differed significantly with regard to irradiated target sites (more brain irradiation in the married/partnered group), receipt of systemic therapy, which was more common in the married/partnered group, and mean age (single patients were older). Mean anxiety and depression scores were not significantly different between the two groups. Survival was similar, too (median 6 months, $p=0.77$). *Conclusion:* Similar ESAS scores of anxiety and depression were observed in the two groups (single vs. married/partnered patients).

Marital support plays an important role regarding different aspects of cancer care and might be associated with better treatment compliance and intensity (1-3). Lack of marital and other types of social support might result in negative consequences, *e.g.*, disparities regarding medication compliance, adherence to supportive measures and lower patient-reported quality of life (2, 3). Many cancer patients are treated with palliative aim and receive multi-modal approaches, which often include radiotherapy (4-7). In

previous studies, patients scheduled for radiotherapy have reported heightened levels of anxiety and/or depression (8, 9). We hypothesized that single patients scheduled for palliative radiotherapy might report increased levels of anxiety and depression, compared to married or partnered patients with presumed better social support. In order to test this hypothesis, a secondary analysis of a single institution study was performed (10), which employed previously collected questionnaires (Edmonton symptom assessment system, ESAS). This short, one-sheet questionnaire has been used by different radiotherapy departments and addresses major symptoms and wellbeing on a numeric scale of 0-10 (highest symptom severity 10), including anxiety and depression (9, 11, 12).

Patients and Methods

The study included 100 of 102 patients at an academic teaching hospital who received palliative radiotherapy during the time period 2013-2015 (10). Two patients had to be excluded because their marital status was unknown. The ESAS tool was administered by a registered oncology nurse immediately before oncologist consultation and imaging for treatment planning, *i.e.* approximately one week before palliative radiotherapy. All medical records, except for in-patient psychiatric care, were available in the hospital's electronic patient record system. Statistical analysis was performed with IBM SPSS Statistics 24. We analyzed two different subgroups, single patients and those who were married or partnered. We employed the chi-square test (when appropriate Fisher exact probability test or *t*-test). A p -value ≤ 0.05 was considered statistically significant. Two-tailed tests were performed. Actuarial survival from start of radiotherapy was analyzed with the Kaplan-Meier method and log-rank test. Ethical approval was not required for this secondary analysis in accordance with the national and institutional guidelines.

Results

Twenty-eight patients (28%) were single, 65 married and 7 partnered. For different age groups up to 79 years, the majority of patients was married or partnered. However,

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Table I. Baseline characteristics before palliative radiotherapy.

Characteristics	No Single	%	No M/P	%	p-Value
Gender					
Male	20	71	54	75	0.80
Female	8	29	18	25	
Primary tumor site					
Prostate	11	39	20	28	0.63*
Breast	2	7	10	14	
Lung	7	25	20	28	
Colorectal	0	0	5	7	
Bladder	3	11	2	3	
Malignant melanoma	1	4	3	4	
Others	4	14	12	17	
Disease stage					
Distant metastases	23	82	67	93	0.14
No distant metastases	5	18	5	7	
RT target type					
Bone metastases	16	57	41	57	0.04**
Brain metastases	0	0	11	15	
Lymph node metastases	1	4	4	6	
Lung	5	18	4	6	
Prostate or bladder	4	14	5	7	
Others	2	7	7	10	
RT fractionation					
>10 fractions	5	18	16	22	0.42
10 fractions	10	36	31	43	
5-9 fractions	8	29	20	28	
<5 fractions	5	18	5	7	
Systemic cancer treatment					
No	9	32	10	14	0.05
Before RT	19	68	62	86	
Mean time from first cancer diagnosis to RT (months)	50		55		0.68
Mean ECOG PS	2.0		1.7		0.19
Mean age	74		70		0.05

M/P: Married or partner; RT: radiotherapy; ECOG PS: Eastern Cooperative Oncology Group performance status. *collapsed into 4 categories (prostate/breast/lung/other). **Collapsed into 4 categories (bone/brain/lung/other).

among the oldest patients (n=25 above the age of 79 years) the majority was single (60%). Further patient characteristics are shown in Table I. Married or partnered patients more often were irradiated to brain target volumes and less often to lungs, prostate or bladder ($p=0.04$). They were also more likely to have received systemic therapy before radiotherapy ($p=0.05$). Furthermore, they were significantly younger ($p=0.05$).

Mean anxiety and depression scores were not significantly different between the two groups, as illustrated in Table II. Significant differences were seen for one ESAS item only, namely overall wellbeing ($p=0.015$). Single patients reported better scores, together with trends towards less pain, fatigue and nausea, and better sleep. Actuarial survival was not significantly different, with a median of 6 months in both groups ($p=0.77$).

Discussion

The background of this study was concern about inappropriate social support in single patients, that could result in heightened levels of anxiety and/or depression. According to ESAS-derived data, similar scores of anxiety and depression were observed in the two groups (single vs. married/partnered patients). Unexpectedly, single patients reported significantly better overall wellbeing and trends towards better sleep, less pain, fatigue and nausea. The fact that single patients were significantly older did thus not result in inferior ESAS scores. Probably, differences in disease extent existed between both groups, as indicated by imbalances in systemic treatment utilization and types of irradiated target volumes. Although this information was not available in our database, it is tempting to speculate that

Table II. Association between ESAS scores and marital status.

Parameter	Single	Married/partner	<i>p</i> -Value
	Mean, SD, range	Mean, SD, range	
Anxiety	2.79, 2.64, 0-9	2.62, 3.15, 0-10	0.81
Depression	1.71, 2.05, 0-6	2.35, 2.99, 0-10	0.31
Pain (not moving)	2.25, 2.27, 0-7	3.07, 2.73, 0-9	0.16
Pain (moving)	3.96, 2.55, 0-8	4.58, 3.41, 0-10	0.39
Fatigue	3.79, 3.01, 0-10	4.72, 2.85, 0-10	0.15
Nausea	0.82, 1.61, 0-6	1.35, 2.00, 0-8	0.22
Appetite	3.46, 2.99, 0-10	3.90, 3.39, 0-10	0.55
Constipation	2.70, 3.22, 0-10	2.40, 3.02, 0-10	0.67
Dry mouth	3.00, 2.69, 0-10	3.00, 2.86, 0-9	1.0
Dyspnea	2.64, 2.50, 0-8	2.69, 2.92, 0-10	0.94
Sleep	1.96, 2.53, 0-8	2.89, 2.83, 0-10	0.14
Overall wellbeing	2.68, 2.14, 0-6	4.04, 2.56, 0-10	0.015

many of the elderly single patients were widowed. The exact level of social support was not captured, because no specific questionnaires for this endpoint were used. In theory, some single patients might have a sufficient network of friends and relatives. Among the limitations of this study one has also to discuss the cohort size, which has implications for the statistical power. Furthermore, it remains unknown how many patients utilized medications that are prescribed for anxiety or depression when they scored their symptoms.

An Italian study of 544 oncological inpatients employed different tools, *i.e.* the Hospital Anxiety and Depression Scale and the Needs Evaluation Questionnaire (13). In this cohort, 27.4% and 20.8% of the enrolled patients were probable cases, respectively, for anxiety and depression. When possible, cases were included and the percentages raised to 52.5% and 39.3%, respectively. Few differences in anxiety and depression according to socio-demographic and clinical variables were demonstrated. A different cross-sectional study that used a different anxiety and depression scale was carried out in 150 outpatients with cancer in Pakistan (14). Marital status had no significant influence on the presence of anxiety and depression. In a Canadian study of 326 patients with metastatic gastrointestinal or lung cancer multivariate analyses indicated that referral for specialized psychosocial oncology care was associated with unmarried status (15). A study from Australia included 266 palliative care patients with cancer who were assessed with the Hospital Anxiety and Depression Scale (16). Overall, 45.8% of patients were possibly depressed and 22.7% probably depressed; 36.9% were possibly anxious and 19.8% probably anxious. Marital status predicted probable anxiety, but not depression. Taken together, the studies did not provide strong evidence for clinically relevant associations between marital status and anxiety/depression. However, they were

performed in different cultural and oncological settings, and with heterogeneous methodology. As discussed by several groups, ESAS is a relatively crude screening tool (9, 11). Other approaches are available; however, the time aspect is of concern when large numbers of patients are to be evaluated, especially in busy oncology departments (8, 17). Overall, anxiety and depression are common in palliatively treated cancer patients and must not be overlooked.

Conclusion

The facts that similar ESAS scores of anxiety and depression were observed and that prognosis was comparable suggest that marital status, as defined in the present study, was of limited relevance.

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