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Impact of Early Integrated Palliative Care on Symptom Burden in Advanced Metastatic Renal Cell Carcinoma

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Abstract

Modern therapies have substantially extended survival for patients with metastatic renal cell carcinoma (mRCC). However, individuals with advanced disease frequently experience intense symptoms. Research has demonstrated that incorporating palliative care early into cancer treatment can enhance quality of life and potentially increase overall survival. As a result, guidelines suggest initiating palliative care for patients presenting with complex symptoms as soon as the disease reaches an advanced stage. To the best of our knowledge, no prior study has examined the specific impact of palliative care in the mRCC population. The present study sought to evaluate changes in symptom burden and quality of life among patients before and after receiving inpatient palliative care. This investigation was designed as a retrospective observational study. The analysis included patients diagnosed with mRCC who were hospitalized in our palliative care unit from 2011 to 2017 because of severe symptoms. Symptom burden was measured upon admission, during the course of treatment, and at the time of discharge. Assessments involved the standard palliative care baseline evaluation, together with daily recording of key symptoms.

A total of 110 hospitalizations involving 58 RCC patients were examined. On average, admission to the palliative care unit occurred 7 years after the initial diagnosis (range 1–305 months). The median age at admission was 70.5 years; 69% of the patients were male, and 3% were female. The primary reasons for hospitalization were pain (52%) and dyspnea (26%). The most commonly reported symptoms by patients included fatigue/exhaustion (87%), weakness (83%), and the need for help with activities of daily living (83%). Following multidisciplinary palliative care intervention, there was a statistically significant decrease in the median minimal documentation system (MIDOS) symptom score (15.6–9.9, $P < 0.001$), in the median numeric pain rating scale (3–0, $P < 0.001$), and in the mean scores on the distress thermometer (5.5–3.1, $P = 0.016$). These findings indicate that palliative care integration provides measurable benefits across the disease trajectory in mRCC by substantially alleviating symptom burden in this patient group. Palliative care should not be viewed solely as end-of-life support; instead, it should be incorporated throughout the advanced stages of the illness, especially once a curative approach is no longer feasible.

Keywords: Renal cell carcinoma, Specialized palliative care, Symptom control, Quality of life

Introduction

Renal cell carcinoma (RCC) represents one of the most frequent malignant tumors among adults and is responsible for 90% of all kidney cancers [1]. When first diagnosed, 30% of patients already show metastatic RCC (mRCC), while approximately 30% will go on to develop metastases at some point during their illness [2].

Partial or radical nephrectomy continues to serve as the main curative option for the majority of RCC cases. In certain situations, surgical intervention can still offer advantages even after spread to distant sites, primarily to ease symptoms such as pain or bleeding [3]. However, management of mRCC – which affects most patients – is almost invariably viewed as palliative in nature. For an extended period, treatment with tyrosine kinase inhibitors

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(TKIs) such as sunitinib and pazopanib was the standard approach aimed at prolonging survival and improving quality of life. Yet first-line options have undergone substantial transformation over the past 2 years [4, 5]. Based on the International Metastatic RCC Database Consortium (IMDC) risk score, various combinations of TKIs with immune checkpoint inhibitors (CIs) are currently recommended [6-11].

Owing to these contemporary treatment strategies, overall survival in mRCC has improved considerably. During the TKI era, the 5-year overall survival (OS) was ~75% when all disease stages were included. Patients with tumors confined to the kidney enjoy 5-year OS rates exceeding 90%, whereas those with distant metastases experience markedly worse results, with survival rates around 15% [12, 13]. The latest combination regimens (TKI + CI) have led to no*table* gains in both progression-free survival (PFS) and overall survival (OS), effectively converting RCC into a long-term manageable condition for numerous individuals. Despite this progress, a considerable gap persists in the availability of suitable palliative care approaches for advanced stages.

Individuals with advanced RCC commonly face intense symptoms, including pain, swelling in both lower limbs, or paraneoplastic syndromes characterized by high blood pressure, elevated calcium levels, and increased red blood cell counts. Additional signs of progression may involve fever, unintended weight loss, cough, enlarged lymph nodes, and bone pain [14]. Beyond extending life, the FDA's oncology division considers symptom relief a central criterion for assessing clinical benefit [15]. In line with observations from other malignancies, data from RCC indicate a clear association between survival duration and symptom burden.

The World Health Organization (WHO) advocates providing palliative care not exclusively to patients in the final stages but also to those dealing with multifaceted symptoms [16]. A frequently cited prospective randomized study by Temel *et al*. [17] found that patients with lung cancer who initiated palliative care early had superior quality of life and lived significantly longer than those in the control arm (11.6 months versus 8.9 months, p = 0.002). Informed by these outcomes and supporting findings [18], major organizations, including the American Society of Clinical Oncology, the WHO, and the National Comprehensive Cancer Network (NCCN), independently highlight the value of delivering specialized palliative care services from an early point in the disease trajectory, in parallel with ongoing anticancer therapy, irrespective of the cancer type [16, 19]. According to NCCN recommendations, early palliative care should be introduced within 8 weeks following diagnosis for individuals newly identified with advanced cancer [19]. It is crucial to clarify that palliative care must not be regarded as synonymous with terminal care alone. Rather, it deserves integration across the entire span of advanced illness, especially once curative options are no longer realistic, which applies to a large proportion of advanced RCC cases. Multiple investigations have highlighted that palliative care referrals continue to be underused, even among patients with terminal illness [20, 21]. Research by Lec *et al*. [22] found that palliative interventions were used in only ~20% of RCC patients (based on the national cancer database covering 2004–2013). The study concluded that such measures remain relatively uncommon in the setting of advanced urological cancers. To better address symptom management at the crossroads of urology, oncology, and palliative medicine, stronger partnerships are essential between specialized outpatient palliative care programs (known in German as 'spezialisierte ambulante Palliativversorgung', SAPV), academic medical institutions, and additional support services [23].

To the best of our knowledge, no prior research has specifically evaluated the contribution of inpatient palliative care among patients with mRCC. For this reason, we conducted a retrospective review of mRCC cases admitted to the palliative care unit at Charité – Universitätsmedizin Berlin. Assessments of quality of life and symptom burden relied on the palliative care-based assessment (PBA), which encompasses several domains, including physical and psychological symptom burden, as well as an appraisal of each patient's personal requirements for assistance.

Materials and Methods

Patients

We carried out a retrospective review of individuals with symptomatic advanced RCC who had been hospitalized in the palliative care unit of our facility from 2011 to 2017. The review was conducted with the patients' consent and in accordance with institutional ethical standards. Consent was obtained from each patient through the routine admission consent document. The protocol received approval from the institutional ethics board. Inclusion required the presence of complete PBA data recorded at the time of admission. The review encompassed np = 58 patients diagnosed with mRCC. Detailed patient features are presented in **Table 1**, where n denotes the number of patients. Risk stratification for the group was determined using the Memorial Sloan Kettering Cancer Center (MSKCC) score, a tool that forecasts survival in metastatic RCC based on clinical and laboratory parameters [24].

Table 1. Patient characteristics.

Sample size (n)	Variable	Category	Value
58	Age (years)	Median (range)	70.5 (33–85)
58	Sex distribution, N (%)	Male	40 (69)

		Female	18 (31)
55	Histological subtype, N (%)	Male (♂)	39
		Female (♀)	16
		Clear cell	28 (72) ♂ / 14 (88) ♀
		Papillary	10 (26) ♂ / 1 (6) ♀
		Collecting duct	1 (3) ♂ / 0 ♀
		Chromophobe	0 ♂ / 1 (6) ♀
58	Time from diagnosis to admission (months)	Mean	83
		Median (range)	66 (1–305)
42	ECOG performance status at admission, N (%)	0	0 (0)
		1	5 (9)
		2	8 (14)
		3	24 (41)
		4	5 (9)
51	MSKCC risk classification[2], N (%)	Favorable	0 (0)
		Intermediate	33 (57)
		Poor	18 (31)
50	Body mass index (kg/m²)[3]	Mean	25
		Median	24
		Range	17–37

Abbreviations: BMI = body mass index; MSKCC = Memorial Sloan Kettering Cancer Center.

Data acquisition

The palliative care unit, located at Campus Virchow-Klinikum within Charité – Universitätsmedizin Berlin, forms part of the oncology division. It features an inpatient section with 10 single rooms and a dedicated palliative care consultation service. Care is delivered by an interdisciplinary team composed of experienced palliative medicine specialists, nursing staff, social workers, physical therapists, psychologists, and nutrition experts. This setup supports a collaborative, multidisciplinary model, with daily team discussions to identify patient needs and customize interventions. The unit also provides a supportive environment through features such as private rooms, a communal kitchen, and an outdoor terrace. In addition to standard medical management, patients had access to supplementary services, including psycho-oncological support for both patients and their family members, as well as physiotherapy.

Patient-centered activities are coordinated during daily interprofessional team conferences. Beyond pharmacological interventions, emphasis is placed on physical rehabilitation, psychological support sessions, and planning for subsequent care arrangements. Family members are actively involved in the care process and decision-making; when desired by the patient, they may stay overnight on the ward.

In this group, a personalized care strategy was developed following the initial evaluation of each patient's symptom load. Comprehensive record-keeping and symptom-guided modifications were carried out in accordance with the established protocols for specialized inpatient palliative care outlined by the German Association for Palliative Medicine [25].

Symptom burden was evaluated upon admission and again at discharge. The evaluation incorporated the PBA, which included the minimal documentation system (MIDOS) symptom score (designed for palliative care patients) [26], the Eastern Cooperative Oncology Group (ECOG) performance status, pain intensity measured by the numeric rating scale (NRS), pain classification (somatic, visceral, or neuropathic), social background details, the distress thermometer (a psychosocial screening instrument), and individual situational difficulties [27]. To create a German adaptation of the Edmonton Symptom Assessment Scale, an updated version of MIDOS(2) was validated. MIDOS is a reliable self-report tool that captures the severity of symptoms such as vomiting, nausea, constipation, weakness, loss of appetite, sleep disturbances, shortness of breath, drowsiness, low mood, anxiety, and overall well-being using verbal rating scales [28]. Each item is scored from 0 (none) to 3 (severe); therefore, elevated MIDOS totals reflect greater overall symptom intensity. Completion of the PBA involves input from both the patient and healthcare professionals, such as nurses or physicians. The distress thermometer, originally introduced by the NCCN in the United States, is a brief, user-friendly instrument that quantifies stress experienced over recent weeks on an 11-point numerical scale — where 0 means "not at all stressed" and 10 means "extremely stressed." A threshold of $\geqslant 5$ is widely accepted as clinically meaningful, signaling notable psychological strain in cancer patients and the likely need for additional support. To further clarify the sources of distress, patients respond to closed-ended questions with yes/no responses. These issues are categorized into practical, family-related, emotional, physical, spiritual, and religious domains [29]. Additionally, details regarding analgesic medications and the patient's destination after discharge were extracted from medical records. Employing this

combination of validated assessment tools enabled consistent, standardized symptom documentation across the study population.

For all statistical analyses, only cases with fully completed questionnaires were included, except where noted otherwise.

Statistical analyses

All statistical analyses were conducted using IBM SPSS Statistics 27 and Microsoft Excel 2016. Variables that followed a normal distribution are summarized using means accompanied by standard deviations. In contrast, non-normally distributed variables are presented as medians together with their full ranges (and quartiles or interquartile ranges when relevant). The following statistical methods were applied: the Wilcoxon test for independent samples, the Mann–Whitney U-test for paired samples, the paired two-sample t-test for paired samples, and the Spearman rank correlation. Any missing values were removed only from the analyses affected by them (pairwise deletion).

All p-values were calculated using two-sided tests, and a threshold of $P < 0.05$ was taken to indicate statistical significance. Because the present work is an exploratory retrospective investigation, these p-values serve merely as directional indicators and should not be regarded as definitive confirmation.

The description of this study adheres to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [30].

Results and Discussion

Patient cohort and admissions

A retrospective examination was performed of the palliative care management provided to 58 individuals with mRCC, who together accounted for 110 hospital stays (including 14 patients with exactly 2 admissions and 9 patients with 3 or more admissions). The median age stood at 70.5 years (range 33–85 years). As expected from the known epidemiology of RCC, the palliative care unit admitted notably more male than female patients **(Table 1)**. The main histological types observed were clear cell RCC (76%) and papillary RCC (20%). On average, 83 months (range 1–305 months) elapsed from the date of initial diagnosis to the start of palliative care unit treatment, with no substantial variation across subtypes. Within this group, 66% of patients were categorized as receiving 'early palliative' care; after their stay, these individuals were either sent home or moved to another hospital ward. By comparison, 25% of the patients were managed under 'end-of-life care', with 22% dying inside our palliative care unit and 3% being transferred to hospice care **(Figure 1)**.

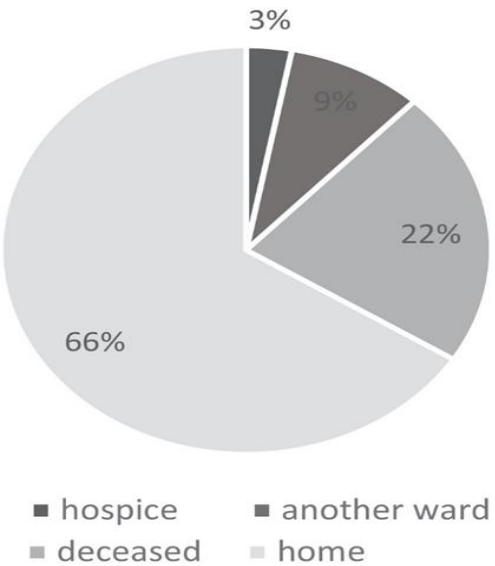


Figure 1. Mode of further care, n = 58.

None of the patients displayed a fully intact performance status (ECOG 0). The largest share (41%) could manage only limited self-care and remained restricted to a bed or chair for more than 50% of their waking hours (ECOG 3). Application of the MSKCC score showed that the entire cohort fell into either the intermediate-risk group (57%) or the high-risk group (31%). Cachexia, which is frequently linked with loss of appetite and marked fatigue — a combination some clinicians term 'anorexia–cachexia syndrome' — is a well-recognized challenge in RCC [31]. Even so, the average body mass index (BMI) in our patient group was 25 (range 17–37), which exceeds the normal range, despite the advanced nature of the disease at presentation. A full overview of patient characteristics is provided in **Table 1**.

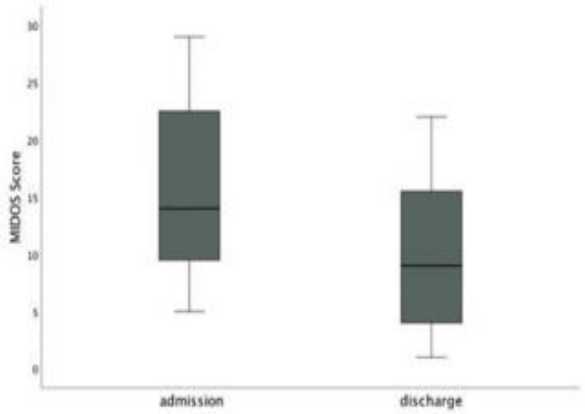
Among the patients, 40% (n = 23) had multiple palliative care admissions, with 2 to 9 stays per person over several years. The average length of each hospital admission was 12 days (range 2–31 days).
Selected portions of the PBA questionnaires were self-completed by the patients. Regarding these self-reported sections at admission, only 62% were fully completed, 26% were only partially completed, and 11% remained entirely unanswered by the patients. At discharge, the proportion of fully completed self-reported sections fell to 31%, a reduction partly attributable to the number of patients who died while on the ward. The MIDOS symptom score was the most consistently completed element, likely because it appears at the top of the form (primacy effect). It was fully recorded in almost 90% of admissions and in 40% of discharges **(Table 2)**. Subsequent analyses included only cases with fully completed questionnaires, unless otherwise indicated.

Table 2. Completeness of the questionnaires.

Assessment time point	Completion status	N (%)
PBA at admission	Completed	36 (62)
	Not completed	6 (10)
	Partially completed	16 (28)
PBA at discharge	Completed	18 (31)
	Not completed	35 (60)
	Partially completed	5 (9)
MIDOS at admission	Completed	52 (90)
	Not completed	6 (10)
MIDOS at discharge	Completed	23 (40)
	Not completed	35 (60)

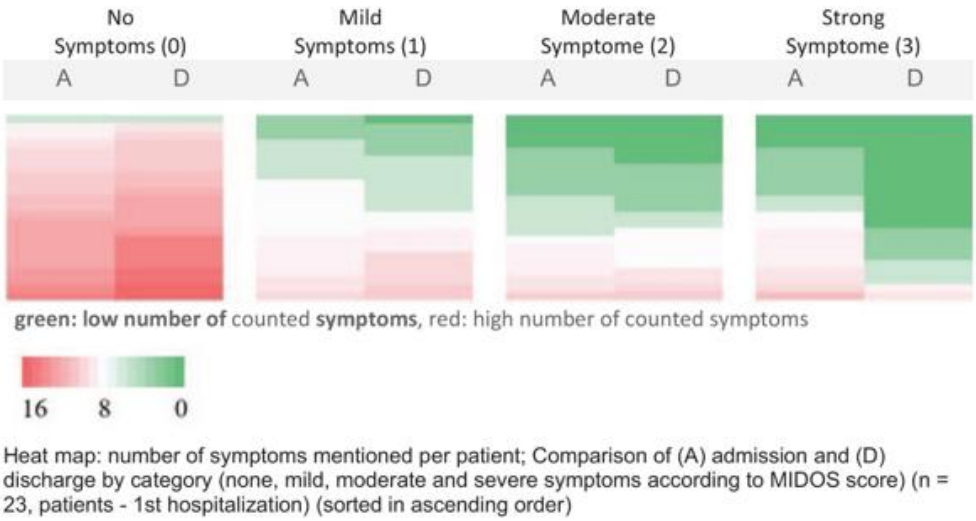
Abbreviations: MIDOS = minimal documentation system; N = number of patients; PBA = palliative care base assessment.

Symptom burden
Symptom intensity within the studied group was measured via the MIDOS score. Of the 58 patients, only 23 could be included in this evaluation. Following the specialized palliative care intervention, the median score declined markedly and statistically significantly, from 15.6 points at entry to 9.9 points at exit [P < 0.001]**(Figure 2a)**. In 96% of these cases (22 out of 23 patients), the recorded score was higher on arrival than on leaving.



Boxplot for symptom assessment with MIDOS score at admission vs at discharge
MIDOS = Minimal Documentation System, p<0.001

a)



b)

Figure 2. MIDOS symptom burden: (a) Boxplot for symptom assessment with MIDOS score at admission versus at discharge. MIDOS, minimal documentation system, $P < 0.001$, and (b) Heat map: number of symptoms mentioned per patient; comparison of (A) admission and (D) discharge by category (none, mild, moderate, and severe symptoms according to MIDOS score) (n = 23, patients – first hospitalization) (sorted in ascending order).

As depicted in **Figure 2b**, those entering with the most intense symptoms gained the greatest relief throughout their stay. There was a clear overall drop in the count of reported symptoms ($P = 0.001$, $rs = 0.63$; 22 percentage points). In parallel, the frequency of severe symptoms at discharge also decreased significantly ($P < 0.001$).
At admission, the most frequently reported symptoms were fatigue/exhaustion (86%), weakness (82%), and dependence on help with activities of daily living (ADL) (82%). Once inpatient palliative care was completed, problems with ADL fell by 28%, and issues connected to caretaking decreased by as much as 71% **(Table 3)**.

Table 3. MIDOS symptom burden, n = 23.

Symptom	Admission, n (%)	Discharge, n (%)	Trend
Fatigue	19 (86)	15 (68)	↓
Generalized weakness	18 (82)	15 (68)	↓
Assistance required for ADL	18 (82)	13 (59)	↓
Sleep disturbances (insomnia)	15 (68)	8 (36)	↓
Reduced appetite	14 (64)	13 (59)	↓
Caregiving-related issues	14 (64)	4 (18)	↓
Family-related distress	12 (55)	6 (27)	↓
Shortness of breath (dyspnea)	11 (50)	9 (41)	↓
Anxiety/fear	10 (46)	9 (41)	↓
Constipation	10 (46)	8 (36)	↓
Depressive symptoms	9 (41)	12 (54)	↑
Nausea	7 (32)	4 (18)	↓
Lymphedema	6 (27)	7 (32)	↑
Vomiting	5 (23)	4 (18)	↓
Wound-related lesions	5 (23)	7 (32)	↑
Confusion/disorientation	4 (18.0)	1	↓

Including all symptoms, independent of the grade.
Abbreviations: ADL = activities of daily living; MIDOS = minimal documentation system; n = number of patients.

In the severe symptom category (MIDOS 3), reduced appetite was the leading complaint (admission: 32%; discharge: 23%). Severe fatigue/exhaustion also featured prominently at entry (27%, discharge: 18%). Severe sleep disturbances, present in 23% of patients on admission, disappeared entirely by discharge, with zero reports of insomnia at that stage. The drop in severe weakness from 23% to 14% was noticeable, though it did not achieve statistical significance.

Despite the modest number of participants, statistically significant gains were found for six symptoms from the MIDOS score across every severity level: fatigue/exhaustion (p = 0.029), need for assistance with ADL (p = 0.042), dyspnea (p = 0.048), insomnia (p = 0.001), caretaking problems (p = 0.006), and nausea (p = 0.026). Taken together, the specialized palliative care approach delivered considerable advantages to the patients.

Those who passed away while under palliative care had a substantially elevated MIDOS score (median 21, n = 11) compared with those who left the unit (median 16, n = 41; p = 0.034) **(Table 4)**. The leading causes for admission in the deceased group were pain, weakness, and dyspnea. The most elevated MIDOS items in this subgroup involved weakness (54%), fatigue/exhaustion (38%), need for assistance with ADL (31%), and caretaking problems (31%). Pain and dyspnea, in particular, responded well to specialized palliative measures.

Table 4. Symptom burden at admission among patients alive compared with those who died.

Symptoms	Alive (*n* = 45)			Deceased (n = 13)			P
	n	M + SD	MD	*n*	M + SD	MD	
MIDOS score	41	15.6 ± 6.6	16	11	20.6 ± 6.6	21	0.034
Range 0–48							
ECOG	32	2.5 ± 0.9	3	10	3.2 ± 0.4	3	0.023
Range 0–4							
Distress	32	6.5 ± 2.4	7	6	6.8 ± 3.7	8	0.453
Range 0–10							
Pain at rest	44	3.2 ± 2.7	3	12	2.2 ± 3.0	0.5	0.17
Range 0–10							

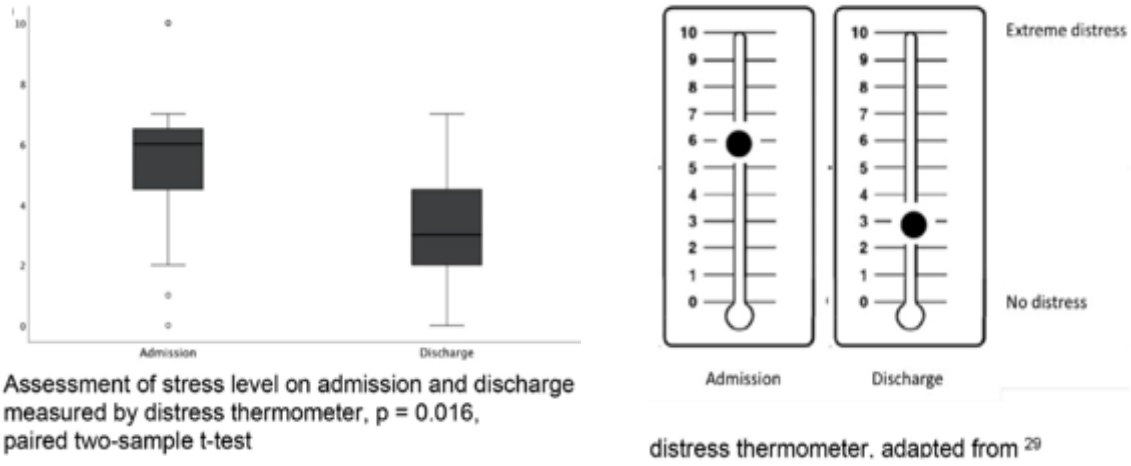
Abbreviations: M = mean; MD = median; MIDOS = minimal documentation system; n = number of patients; SD = standard deviation.

Performance status

Median ECOG performance status did not shift during the inpatient palliative care period (n = 18, median = 2). Across the full group, seven patients maintained the same ECOG level from entry to exit, five experienced a decline, and six recorded an increase. Notably, the MIDOS score showed a positive association with the ECOG score at both admission (rs = 0.558, P < 0.001) and discharge (rs = 0.474, P = 0.35). Individuals who died during their stay had a markedly higher ECOG rating on admission than those who were discharged (median 3.2 in np = 10 versus 2.5 in np = 21, P = 0.023).

Distress level

Psychosocial burden and quality of life were assessed using the Visual Distress Thermometer. After the palliative care intervention, distress scores decreased significantly from 5.5 to 3.1 [P = 0.016, np = 15] **(Figures 3a and 3b)**. Answers to follow-up questions indicated an increase in emotional strain, but this change was not statistically significant. A higher MIDOS score at admission was associated with elevated psychosocial stress (rs = 0.356, P = 0.028; n = 38), though this association lost significance by discharge (rs = 0.286, P = 0.250; n = 18).



a) b)

Figure 3. Distress level: (a) Assessment of stress level on admission and discharge, measured by the distress thermometer, P = 0.016; (b) distress thermometer.
Source: Adapted from Mehnert *et al*. [29]

Pain management

Pain intensity was evaluated on an 11-point numeric scale (0 = no pain, 10 = the worst imaginable pain) [32]. The median pain score decreased substantially from NRS 3 to 0 during the palliative care stay ($P < 0.001$). Nineteen percent of the patients did not receive any analgesic medication whatsoever. Among those who did receive pain relief during their hospital stay, 75% were prescribed WHO level III opioids, with morphine and hydromorphone being the most frequently administered. In addition, 58% of the patients were given rescue opioids for breakthrough pain episodes. Interestingly, patients who died during their hospitalization reported lower pain scores on admission, most likely because they were already receiving established WHO level III opioid therapy **(Table 4)**.

Patients' discharge management

Figure 1 provides a summary of the destinations following discharge. Once the specialized palliative care intervention was completed, the largest share of patients (66%, np = 38) returned home. In comparison, 9% (np = 5) were moved to another department within Charité – Universitätsmedizin Berlin or to external facilities. Overall, 23 of 43 patients were readmitted after leaving the unit.

Among those classified as receiving 'end-of-life care', 3% (np = 2) were sent to hospice facilities, and 22% (np = 13) of the mRCC patients in our group passed away in the palliative care unit as a result of disease progression.

A potential limitation in our evaluation stems from incomplete data collection for patients who died while on the unit. To account for this, we directly compared symptom load, performance status, distress levels, and pain at rest between those who were successfully discharged and those who died during their stay.

Symptom burden and ECOG scores were significantly higher among patients who died, whereas no meaningful differences emerged regarding distress or pain at rest **(Table 4)**.

This retrospective review investigates symptom burden and its development in 58 patients with mRCC who underwent inpatient specialized palliative care at Charité – Universitätsmedizin Berlin between 2011 and 2017. The findings indicate that such targeted inpatient palliative intervention can produce substantial reductions in overall symptom load (as measured by MIDOS) and psychosocial distress (as measured by the distress thermometer), particularly in relation to pain intensity.

Given recent advances in therapies, such as TKI and immune checkpoint inhibitors, have markedly prolonged survival for individuals with mRCC over the last ten years, the need for sustained supportive care to manage persistent symptoms has grown considerably, especially in cases that follow a prolonged chronic pattern. Consequently, delivering appropriate specialized palliative support to this population is of growing importance. At present, only sparse information exists concerning palliative care specifically for patients with mRCC. Furthermore, integration of palliative services into the management of genitourinary malignancies remains limited [33]. To our knowledge, no prospective investigations — and in particular no randomized controlled trials — have yet been performed in this setting. Because the value of palliative care has been firmly established for many other advanced cancers, the current analysis aimed to explore symptom burden, quality of life, and the impact of specialized inpatient palliative care within the mRCC population.

In principle, introducing palliative care earlier in the disease trajectory is considered optimal. In the present group, however, an average of 83 months — nearly 7 years — elapsed between the original RCC diagnosis and the first admission to specialized inpatient palliative care. This delay largely reflects the substantial improvements in progression-free survival and overall survival achieved through continuously evolving targeted therapies and personalized treatment strategies for mRCC. The fact that many patients returned for repeated admissions (averaging 2 stays) implies that the initial hospitalization provided noticeable symptom relief and encouraged patients to accept further specialized palliative support.

A core challenge in palliative medicine is coordinating interdisciplinary, multi-professional efforts to achieve swift symptom control, enabling patients to return home whenever feasible. In our evaluation, this outcome was achieved in 66% of patients. Nevertheless, in a minority of cases, the disease advanced too rapidly despite intensive specialized measures, making return home impossible. These individuals either died in the palliative care unit (22%) or were transferred to hospice (3%). Contributing factors may include an already elevated symptom burden on arrival, particularly aggressive tumor biology, or postponed initiation of palliative support. The mean hospitalization duration of around 12 days aligns well with the preferred shorter length of stay typically targeted in specialized palliative care units.

To capture the various dimensions of patients' needs, several validated approaches are available for selection. Combining multiple standardized assessment tools, as implemented in our setting through the PBA, enables consistent, uniform documentation of the patient's condition at the start of palliative care. The MIDOS instrument is particularly suitable for palliative care populations because it demands minimal effort, requires little time, and achieves high completion rates when patients repeatedly evaluate their own symptoms and difficulties [26]. In addition, the single MIDOS item addressing general well-being showed a significant correlation with quality-of-life measures from the EORTC [34]. As anticipated, the specialized inpatient palliative intervention led to a clear

reduction in symptom burden, reflected by the drop in the MIDOS score. A comparable benefit was previously observed in a group of sarcoma patients who received inpatient palliative support [35].

In the current patient group, the most commonly reported symptoms were fatigue and exhaustion, followed closely by weakness and dependence on assistance with activities of daily living (ADL). These findings align with observations by Bergerot *et al*. [36] and Harding *et al*. [37], underscoring that mRCC frequently involves a strong sense of overall illness and widespread systemic complaints. Harding *et al*. [37] reported that, among individuals with advanced disease, the five most common symptoms were fatigue (82%), weakness (65%), worry (65%), shortness of breath (53%), and irritability (53%).

When examining symptom severity, we demonstrated the intended treatment benefit in a statistically significant manner. Within this patient population, depression was the sole MIDOS item that worsened over the course of the stay, likely because patients confronted their illness more directly. A prior meta-analysis conducted by Fulton *et al*. [38] indicated that psychological interventions delivered in palliative care settings can lessen depressive symptoms, supporting the value of offering psycho-oncological counseling more regularly.

The distress thermometer served as an additional instrument in our evaluation to gauge quality of life. Multiple investigations have established a positive link between moderate-to-severe distress scores and reduced quality of life across various cancer types [39, 40]. In the present mRCC cohort, palliative medical treatment resulted in a noticeable improvement in quality of life, as evidenced by concurrent increases in both the MIDOS score and the distress thermometer ratings. Similar gains in quality of life through dedicated palliative care have been documented in studies of other malignancies compared with routine care. Remarkably, some of these benefits occurred even without measurable reductions in symptom intensity scores [41-43]. Unlike our observational data, those earlier reports also encompassed randomized controlled trials.

It is widely recognized that pain associated with cancer affects roughly 70% of all patients. For this reason, effective pain control remains essential throughout the illness for individuals with mRCC [44]. In our group, pain intensity was successfully and significantly lowered by the specialized palliative intervention. A distinctive aspect of this cohort was the comparatively modest pain level on admission (median NRS 3), which decreased further to a median of 0 out of 10 at discharge. The relatively mild pain reported at entry suggests that many patients were already managed with WHO level III analgesics before arrival, with additional refinement occurring during the inpatient period. It is also reasonable to consider that individuals living with chronic pain may tend to underreport their true pain severity, contributing to the lower scores observed initially. Beyond pharmacological measures, other elements of specialized palliative care — such as intensified, personalized support, psycho-oncological sessions, soft-tissue techniques, heat application, and therapeutic massage — also contributed to pain relief. A concurrent decrease in psychosocial stress can also modify how pain is perceived. As outlined in the review by Liu *et al*. [45], an integrated, holistic strategy yields the best outcomes for addressing the complex, multidimensional nature of cancer-related pain. It is important to remember that pain intensity is a subjective measure and, therefore, requires ongoing evaluation throughout the disease trajectory.

Moreover, the present study identified statistically significant associations linking the MIDOS score, ECOG performance status, and distress intensity. Patients experiencing a heavy symptom load tended to record the highest ECOG values and the greatest distress thermometer readings. Clear differences in MIDOS scores, ECOG ratings, and distress levels emerged when comparing patients who were discharged with those who died while on the palliative care ward. As anticipated, the deceased group presented with a heavier symptom burden on admission, greater restrictions in daily functioning, and poorer quality of life than the patients who were eventually discharged from the unit.

Regarding the limitations of this study, our retrospective investigation represents a single-center analysis conducted over a restricted timeframe and involving only a small number of patients. In addition, several constraints stem from incomplete data collection, as not all patients completed the PBA questionnaire. The missing information resulted at least partly from patients' limited capacity for self-assessment, caused by a substantial burden of physical and psychological symptoms, as well as from the death of some participants. Consequently, data from these patients were lost, particularly concerning the discharge questionnaire. A considerable bias arises in the analysis due to the absence of data from deceased patients, as previously noted by Diehr and Johnson [46] and Hussain *et al*. [47]. To avoid distorting the results, all cases with incomplete data were omitted from the statistical evaluation, in line with the approach outlined in the methods section.

El-Jawahri *et al*. [18] have similarly highlighted these difficulties in palliative care research, where methodological issues, such as high attrition rates and missing data, are common due to disease progression and mortality. This data gap prevents any assessment of information from patients who died. As a result, survival bias restricts the overall interpretability of the findings. To more accurately assess the advantages of specialized palliative care interventions in the future, systematic data collection could be implemented at regular intervals throughout the hospital stay to reduce this bias.

Evaluating earlier research on palliative treatments remains challenging owing to substantial variations in study designs. The majority of these studies do not concentrate on specialized inpatient palliative care but instead

examine isolated aspects such as psychosocial and spiritual counseling, home-based care, care coordination, or guidance and education for family caregivers [18, 43, 48, 49].

Notwithstanding these limitations, the present results add strong support to the growing body of evidence indicating that palliative care interventions enhance patients' quality of life, satisfaction with care, and end-of-life outcomes. This further challenges previous reports that found only weak evidence for palliative care's effectiveness [18]. Although multiple studies using quality of life as the main endpoint have demonstrated statistically significant improvements in favor of palliative care, evidence supporting the reduction of physical and psychological symptoms specifically in patients with metastatic renal cell carcinoma (mRCC) had been absent until now. Our study provides such data for the first time [41, 42].

It is widely recognized that introducing palliative care early promotes more efficient use of hospice and palliative care resources as the illness progresses. Among other benefits, this approach can help prevent avoidable hospital admissions, intensive care interventions, and aggressive tumor-directed therapies near the end of life [50]. In the current patient group, the initial contact with palliative care occurred, on average, after 83 months, most likely reflecting the typically slow progression of mRCC and the availability of effective systemic treatments. Nevertheless, combining standard oncology care with palliative support earlier in the disease course for all patients might have led to even greater relief of symptoms associated with advanced cancer.

Conclusion

In summary, caring for patients with advanced cancer demands considerable resources, including sufficient time and specialized expertise, which are frequently insufficient within routine peripheral care environments. This underscores the importance of establishing a highly skilled, multidisciplinary palliative care team capable of delivering effective symptom management. Such specialized teams perform regular, structured symptom evaluations using validated instruments like the MIDOS, distress thermometer, and NRS, and record these assessments consistently. Patients benefit from access to an interprofessional team equipped to address not only physical issues but also emotional, functional, social, and spiritual concerns. Palliative care further prepares both patients and their families for the challenges that may arise after hospital discharge. Beyond symptom treatment, palliative medicine involves systematic symptom evaluation and provides psychosocial support to patients and relatives alike. The patient's individual treatment goals are identified and incorporated into the overall therapeutic plan.

Our findings demonstrate the beneficial effects of a specialized, multi-professional palliative care approach in patients with mRCC. Additional research will be required to determine whether consistent early integration of palliative care can further enhance symptom control, quality of life, and even overall survival in this population. Consequently, routine and early screening for physical and psychological symptoms should be embedded in standard medical care throughout the disease trajectory to identify individuals who require more intensive supportive measures promptly.

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