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Original Research Article

Medication strategies: enhancing symptom management and quality of life in palliative care

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ABSTRACT

Background: Palliative care is integral to addressing suffering during advanced illnesses, and tailored medication is crucial. This study aims to explore medication patterns in palliative care, focusing on understanding their impact on symptom management and patient well-being.
Methods: Data collection involves a retrospective approach with patients referred to the Community Support Team in Palliative Care of the Trás-os-Montes and Alto Douro Local Health Unit between April 2022 and March 2023. Data are recorded, including demographic information, medical history, and pain-related details. Medication is administered based on healthcare professionals' judgment, following established pain management guidelines. Descriptive and cross-tabulation techniques are employed for the statistical analysis.
Results: Key findings highlight Morphine and Paracetamol as primary analgesics, constituting 14.6% and 13.8%, respectively. Fentanyl, identified as a potent opioid, addresses severe pain at a rate of 10.0%. The study also reveals that 23.7% of cancer patients receive palliative sedation, emphasising its role in symptom control and dignified care.
Conclusions: This research provides significant insights into the intricate relationship between medication administration and palliative care outcomes. The study reveals key findings, such as the prominence of Morphine, Paracetamol, and Fentanyl as essential analgesics in addressing pain and improving patient comfort. Additionally, the high prevalence of palliative sedation among cancer patients underscores its crucial role in symptom control and ensuring dignified care at the end of life. The complexity of medication choices within palliative care settings is emphasised, highlighting the need for careful consideration and tailored approaches.

Keywords: Cancer, End of life care, Medication, Palliative sedation, Patient outcomes

INTRODUCTION

Palliative care is essential to give a high level of healthcare. This method's primary focus is reducing pain and enhancing the quality of life for patients facing advanced illnesses.[1] It can be challenging to decide what medication to give each patient, but being able to do just that makes it central to adequate palliative care.[2] The decision becomes even more complex with the complexity of this type of care. Correctly understanding the interplay between medicine and end-of-life challenges requires much knowledge.[3] This study delves into the landscape of medication administration in palliative care, aiming to elucidate patterns, implications, and challenges when managing symptoms and optimising patients' comfort.

As patients navigate the complex journey to the end of life, the role of medications expands beyond simply alleviating symptoms. Medications help relieve pain, manage distressing symptoms and enhance overall patient well-being.[4] However, selecting appropriate medications requires careful consideration of factors such as the nature of symptoms, patients' medical histories, preferences, and underlying conditions. Thus, medications in the palliative care study of internal medicine require a complex interaction of medical expertise, patient-centred care, and ethical considerations.[5,6]

This study seeks to address this gap by examining medication administration patterns, including the usage of potent analgesics like Fentanyl, and by investigating how medication choices align with patient preferences and clinical needs. By shedding light on the intricate relationship between medication administration and palliative care outcomes, this research contributes to the broader goal of optimising the quality of care provided to patients during their end-of-life journey.

METHODS

Study design and participants

This retrospective study included patients referred to the Community Support Team in Palliative Care of the Trás-os-Montes and Alto Douro Local Health Unit between April 2022 and March 2023. Informed consent was obtained from all participants before their inclusion in the study.

Participants were selected using a convenience sampling method, whereby all patients meeting the inclusion criteria during the study period were included. Inclusion criteria encompassed patients receiving palliative care services at our institution, with documented pain assessments during initial and follow-up visits.

Data collection

Patient data were collected. Demographic information, medical history, and pain-related details were recorded during the first visit. Additionally, a follow-up visit was conducted to assess the patients' condition, focusing on the distribution of cancer patients and palliative sedation at the end of life. During this last visit, the pain level scores were re-evaluated.

Pain level assessment

During the initial and follow-up visits, patients' pain levels were assessed using a numeric pain scale ranging from 0 to 10, accompanied by facial expressions representing different levels of discomfort. This scale is a recognised and validated instrument for quantifying pain intensity, providing a straightforward and patient-friendly method for self-reporting.[7]

The numeric pain scale consists of a horizontal line from 0 (indicating 'no pain') to 10 (representing 'worst imaginable pain'). To further aid patients in expressing their pain experiences, each numerical value was associated with a corresponding smiley face illustration. The smiley faces ranged from a happy expression at 0, denoting no pain, to a progressively distressed or pained expression at higher numeric values.

Trained healthcare professionals guided patients in selecting the numeric value and associated smiley face that best represented their pain intensity. This approach facilitated a more accessible and intuitive expression of pain, encouraging patients to communicate their experiences effectively.

The pain assessments were conducted in a supportive and private setting to ensure patients felt comfortable providing accurate and honest feedback. The numeric scores obtained during the first and last visits were then used for subsequent statistical analysis.

Medication administration

Throughout the study, medication was administered to patients as deemed necessary by healthcare professionals, following established guidelines for pain management. The type and dosage of medication vary depending on the patient's pain level, medical condition, and treatment response.

Statistical analysis

The collected data were subjected to statistical analysis using IBM SPSS Statistics software (Statistical Package for the Social Sciences, Chicago, IL, USA), version 20. In recognition of the non-normal distribution of the dataset, the Wilcoxon Test, a robust non-parametric test, was employed to compare pain level scores between the first and last visits. This choice was made to ensure the validity of the analysis, considering the nature of the measured variables and their distribution.

Cross-tabulation was performed to analyse the distribution of cancer patients and palliative sedation at the end of life, providing valuable insights into the study population's demographic and end-of-life care characteristics.

Descriptive statistics were meticulously reported to overview the quantitative variables comprehensively. Median values, accompanied by interquartile ranges (IQR), were presented as the central measure and spread, respectively. Additionally, mean values with standard deviation (SD), as well as minimum (min) and maximum (max) values, were included to provide a more nuanced understanding of the dataset.

A conventional threshold of $p<0.05$ was adopted to ascertain statistical significance, implying that results with a p-value below this level were considered statistically significant. This rigorous approach to statistical analysis ensures the reliability and validity of the findings, particularly given the non-normal distribution of the data.

The study exclusively involved the retrospective analysis of medical records and did not involve any interventions or experiments on human subjects. All patient data were obtained per strict confidentiality protocols, ensuring anonymity and privacy. As such, this study did not require ethical approval or informed consent from individuals involved because it used pre-existing, de-identified data that did not directly affect patient interventions or interactions. The research relied on anonymised information for analysis, eliminating the need for individual consent and ethical approval. In any case, we obtained written informed consent from all participants before enrolment in the study.

RESULTS

Descriptive analysis

The study included 95 patients, with 45 (47.4%) being male. The age range varied from 40 to 101 years (mean = 81,52; SD = 1,174; median = 84). In Table 1, the descriptive analysis outlines the distribution of medication administration among the study participants. The data encompasses three categories of medication status: “Yes,” “No,” and “Yes, in SOS” (where ‘SOS’ signifies, for example, administering medication such as Ibuprofen when experiencing symptoms like pain). A total of 10.1% (n=239) of the medication was administered. Additionally, 1.3% (n=32) of the medication was administered in SOS. The data further classifies the types of medications used. Opioids major were the most commonly administered medication (30.9%), followed by antipsychotics (16.7%). Notably, corticosteroids and antiemetics were rarely used (Table 1).

Further examining the specific medications in Table 1, it is evident that several medications were administered. Acetylsalicylic acid was administered to 4.6% of individuals, with 3.1% indicating administration in SOS. Similarly, naproxen had a minimal administration rate, with 2.5% and 0.0% percentages for regular and SOS groups, respectively.

In contrast, ibuprofen displayed notable variations. The administration was reported by only 0.4% of the regular medication group, with no administration in SOS. On the other hand, paracetamol was administered to 13.8% of the common medication group and 40.6% in SOS.

The data further illustrates varying usage patterns for different medications, with some substances like morphine (14.6%) and quetiapine (13.0%) showing higher usage percentages among specific categories of medication users. These findings offer valuable insights into the medication landscape among study participants, contributing to the comprehensive understanding of the subject matter.

Table 1: Descriptive analysis of medication administration.

Medication	Yes n=239 (10.1%)	No n=2105 (88.6%)	Yes, in SOS n=32 (1.3%)
Acetylsalicylic acid	11 (4.6)	83 (3.9)	1 (3.1)
Naproxen	6 (2.5)	89 (4.2)	0 (0.0)
Ibuprofen	1 (0.4)	94 (4.5)	0 (0.0)
Paracetamol	33 (13.8)	49 (2.3)	13 (40.6)
Metamizole	4 (1.7)	89 (4,2)	2 (6.3)
Tramadol	7 (2.9)	86 (4.1)	2 (6.3)
Morphine	35 (14.6)	51 (2.4)	9 (28.1)
Gabapentin	1 (0.4)	94 (4.5)	0 (0.0)
Pregabalin	7 (2.9)	87 (4.1)	1 (3.1)
Buprenorphine	15 (6.3)	80 (3.8)	0 (0.0)
Fentanyl	24 (10.0)	71 (3.4)	0 (0.0)
Lepicortinolo	13 (5.4)	82 (3.9)	0 (0.0)
Prednisolone	5 (2.1)	90 (4.3)	0 (0.0)
Methylprednisolone	2 (0.8)	93 (4.4)	0 (0.0)
Dexamethasone	2 (0.8)	93 (4.4)	0 (0.0)
Hydrocortisone	1 (0.4)	94 (4.5)	0 (0.0)
Diazepam	3 (1.3)	91 (4.3)	1 (3.1)
Lorazepam	12 (5.0)	83 (3.9)	0 (0.0)
Alprazolam	2 (0.8)	93 (4.4)	0 (0.0)
Quetiapine	31 (13.0)	63 (3.0)	1 (3.1)
Haloperidol	8 (3.3)	87 (4.1)	0 (0.0)
Midazolam	9 (3.8)	85 (4.0)	1 (3.1)
Butylscopolamine	3 (1.3)	92 (4.5)	1 (3.1)
Levomepromazine	2 (0.8)	93 (4.4)	0 (0.0)
Metoclopramide	2 (0.8)	93 (4.4)	0 (0.0)

Cross-tabulation cancer patient Vs. palliative sedation

The cross-tabulation table (Table 2) offers a detailed analysis of the complexity between cancer patient status and palliative sedation at the end of life in preference. In this patient group comprising 38 cancer patients, palliative sedation was used for nine patients but not for 29 patients. The cancer patient group accounts for 23.7% and is represented by 76.3% of this group. Of those patients who received palliative sedation, 60.0% were cancer patients. On the other hand, palliative sedation was given to six of the sixty participants within the non-cancer group. In other words, this is equivalent to 10.5% of the non-cancer group. Significantly, 40.0% of the cancer patient category was palliative sedated. In an aggregate view of the whole dataset with 95 participants, 15 people received palliative sedation (15.8%). A p-value of 0.85

indicates no statistical relationship between palliative sedation and cancer patient status.

Table 2: Cross-tabulation analysis of cancer patient status and palliative sedation at the end of life.

Analysis	Palliative sedation		
	Yes n=15 (15.8%)	No n=80 (84.2%)	P value
Yes n=38 (40.0%)	9	29	0.85
% in cancer patient	23.7	76.3	
% in palliative sedation	60.0	36.3	
No n=57 (60.0%)	6	51	
% in cancer patient	10.5	89.5	
% in palliative sedation	40.0	63.7	

Wilcoxon test

The Wilcoxon test was employed in the current study to assess the evolution of pain scores between patients' initial and final visits. The results revealed a statistically significant difference (Z = -3.456, p = 0.001), indicating a notable reduction in pain intensity over time.

DISCUSSION

The study carries out a descriptive analysis of medication administration that depicts common and frequent patterns of medicine usage among the participants. Out of the 95 patients enrolled, medication was administered to 10.1% (n=239), while another 1.2% (n = 32) were only medicated under SOS protocol. Significantly, there was a difference in the medication landscape across different substances. For example, acetylsalicylic acid was given to 4.6% of people who were studied, while naproxen was administered to only 2.5%. However, the administration rate of ibuprofen was just 0.4%, while that of paracetamol was 13.8%.

Specifically, the significance of paracetamol in everyday use and SOS therapy cannot be ignored. This is one of the most popular analgesics and antipyretics medications that are used to relieve pain or fever. The higher percentage of paracetamol administration in the SOS group (40.6%) could be attributed to acute pain episodes or elevated temperature. Comparing our results with previous studies, our findings resonate with the widespread use of paracetamol as a primary analgesic and antipyretic medication in palliative care.[8] Similar to our observations, studies reported a significant usage of paracetamol among palliative care patients, particularly in managing acute pain episodes.[9,10]

Morphine also deserves emphasis because of its reasonably high administration rate (14.6%). Morphine is a potent opioid analgesic commonly used to treat severe pain, and hence, its popularity can be attributed to palliative care, where pain relief is a significant undertaking.[11] This finding is consistent with the findings of Andersen et al (2003), who also observed a considerable utilisation of morphine in their study population.[12]

The prominence of quetiapine in our medication landscape (13,0%) underscores its potential utility in managing symptoms of agitation, anxiety, or insomnia in palliative care patients, as suggested by previous research.[13-15]

The medication administration data includes a potent opioid analgesic named fentanyl that requires special consideration. Fentanyl is remarkable because it has a 10.0% usage rate, especially in palliative patients. In this regard, Fentanyl's quick onset of action and limited duration make it an attractive choice for handling acute pain episodes. The lack of Fentanyl administration in the SOS category is consistent with their routine application for continuous pain instead of on-demand analgesia. Its higher administration rate indicates its ability to provide substantial pain relief to patients in palliative care settings that revolve around comfort and quality of life.[16] Our findings align with the observations of Leppert et al (2010), who highlighted Fentanyl's quick onset of action and efficacy in providing acute pain relief among palliative care patients.[17]

In addition to medication administration patterns, our study explored the correlation between cancer patient status and the application of palliative sedation at the end of life. This analysis thoroughly presents the congruent attitudes towards palliative sedation by cancer patients. Significantly, in the cancer patient population, sedation therapy was prescribed to 23.7%, with 60% of such a type of therapy belonging to the cancer patient cohort. The findings, therefore, imply that most cancerous patients relied on palliative sedation to alleviate their terminal problems. Similar observations have been reported by Prado et al (2018) in their retrospective study on end-of-life care practices.[18]

On the contrary, only 10.5% of non-cancer patients received palliative sedation. This disparity highlights the hurdles and issues that most cancer patients go through at advanced stages of sickness. Cancer is a leading cause of mortality, with the highest percentage (40.0%) of palliative sedation administration among the various cases, indicating the importance of this intervention for comfort and quality of life on the deathbed.

The p-value for this current study is 0.85, crucial in the discussion section. The high p-value beyond the expected level of 0.05 is an indicator that no statistical relationship exists between the two categorical variables in this sample. While our study observed a lack of significant association between the decision for palliative sedation and the patient's cancer status, it is essential to acknowledge the correlational nature of our findings. As previously indicated, our study design limits our ability to establish causal relationships. The intent here is not to make definitive causal claims but to report observed associations within the scope of our study.

This finding prompts consideration of potential factors influencing the decision for palliative sedation, and a thorough discussion is warranted to explore plausible explanations. However, it is crucial to exercise caution in interpreting these associations as causation. Subsequent research endeavours, perhaps employing a more extensive dataset or a different study design, may shed light on the nuanced dynamics between cancer status and the choice of palliative sedation. Our study serves as a starting point, highlighting the need for further investigations to understand better the complex interplay of variables influencing clinical decisions in palliative care settings. These findings may have significant implications for practice because it would mean that palliative sedation decision-making is primarily based on other unassessed factors. The main point to note about the p-value, despite being high, does not negate the existence of real-world association but illustrates the limitation of this dataset and sample size, which are insufficient to determine all the confounding variables that influence the decision-making process on palliative care.

However, the Wilcoxon test indicated that pain scores significantly changed over time. The pain intensity was reduced between the first and last visits, with a significant p-value of $p=0.001$, showing that the medical interventions and care worked. Reducing pain intensity indicates that proper medical strategies were applied during the research that must be considered in palliative care and well-planned and specific pain treatments.

Practical application and recommendation for clinical palliative care

The findings from this study offer tangible implications for enhancing patient care in palliative settings. Based on our observations, we advocate for developing comprehensive guidelines that outline specific medication strategies for various symptom presentations in palliative care. These guidelines should emphasise personalised approaches, accounting for individual patient needs, responses, and preferences. Practical recommendations emerge from our study, showcasing the efficacy of certain medications like morphine and fentanyl in addressing severe pain. Healthcare providers could benefit from protocols detailing dosages, frequencies, and potential adjustments to these medications.

Additionally, interdisciplinary collaboration involving physicians, nurses, pharmacists, and psychologists is vital to optimise medication strategies and overall care. Continuous education and training programs should be integrated into palliative care facilities to ensure healthcare providers remain updated with evolving medication administration practices. Communication strategies that empower patients and caregivers with comprehensive information about medication choices, potential side effects, and anticipated outcomes are imperative. By integrating these findings into clinical pathways and guidelines, healthcare providers can significantly improve patient outcomes and foster dignified end-of-life care.

Several limitations should be considered when interpreting the findings of this study. First, the study's sample size of 95 participants, while sufficient for the study's scope, might limit the generalizability of the results to broader populations of patients receiving palliative care. Furthermore, the study's focus on a single healthcare centre could limit the diversity of medication practices observed. The absence of detailed patient medical histories and symptom profiles prevents a comprehensive exploration of how individual characteristics may influence medication decisions. Finally, the study's retrospective analysis precludes drawing causal relationships between medication usage and outcomes. Despite these limitations, the study offers valuable insights into medication practices within the studied context, contributing to our understanding of palliative care strategies. Future research in larger, more diverse settings could provide a more comprehensive view of medication usage in palliative care.

CONCLUSION

Our study provides valuable insights into medication administration and its implications in palliative care, shedding light on the complexities of pain control and relief for end-of-life patients. By emphasising the need for personalised medication regimens tailored to individual patient needs and preferences, our study underscores the importance of optimising medication protocols in palliative care settings. Collaborative efforts among clinicians and multidisciplinary teams are essential to refine end-of-life medicine protocols and improve patient outcomes. Moreover, our study calls for further research to explore longitudinal trends in pain management, psychological determinants of pain perception, genetic factors influencing pain experience, and nuanced patterns of pain perception across different cancer stages and types. By addressing these research avenues, future studies can provide a more comprehensive understanding of pain perception and enhance the quality of end-of-life care.

Recommendations

Integrating complementary therapies like aromatherapy alongside traditional pharmacological interventions holds significant promise in exploring innovative treatment modalities within palliative care. Aromatherapy, using essential oils extracted from plants, offers a non-invasive approach to managing symptoms such as pain, anxiety, and nausea. The inhalation or topical application of specific essential oils, such as lavender or peppermint, has shown anecdotal and some empirical evidence to alleviate discomfort and improve overall well-being in palliative patients.[19] This unconventional approach doesn't replace pharmacological interventions but rather complements them, potentially enhancing the overall effectiveness of symptom management. Further investigation into the specific mechanisms of action and controlled clinical trials could elucidate the precise role of aromatherapy in palliative care, offering an expanded toolkit for healthcare providers aiming to optimise patient comfort and quality of life.

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