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Original Research Article

Type and Prevalence of Pain Among Radiation Oncological Patients – A Cross-Sectional Study

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Abstract:

Pain remains one of the most frequent and distressing symptoms among patients undergoing radiotherapy, yet its prevalence and characteristics are often underexplored in resource-limited settings. This single-center cross-sectional study was conducted over a six-month period, enrolling 643 patients from a tertiary care radiation oncology department. Participants completed a structured questionnaire regarding demographics, cancer type, comorbidities, metastasis status, surgical history, consultation with pain physicians, pain prevalence, intensity, management, and impact on daily life. The majority of patients were between 51 and 75 years (547, 85%), and females predominated due to the high proportion of breast cancer cases (222, 34.5%). Urogenital cancers (209, 32.5%), digestive cancers (100, 15.5%), and lung cancers (33, 5.2%) comprised other major groups. Pain was reported by 376 patients (58.5%), of whom 513 (79.8%) experienced limitations in daily activities. Among those with pain, most had a Visual Analog Scale (VAS) score of 5 (376, 58.5%), while 73 (11.3%) reported severe pain with a VAS of 7. Continuous pain was more common (555, 86.2%) than breakthrough pain (89, 13.8%). Pain management strategies varied, with 276 (43%) on daily medications, 167 (26%) using them as required, 71 (11%) untreated, and a minority seeking alternative therapies. Only 102 (15.8%) had consulted a pain physician despite the high burden of pain, and 507 (78.9%) reported comorbidities. Pain prevalence was significantly higher in patients with metastasis (χ^2 test, $p < 0.05$). The findings underscore the need for systematic pain assessment and integration of palliative care into oncological practice.

Keywords: Cancer, Oncology, Pain, Prevalence, Radiotherapy

Introduction:

Pain is one of the most prevalent and debilitating symptoms among cancer patients, profoundly influencing physical, psychological, and social well-being.[1-4] In oncological practice, particularly in radiation oncology, the prevalence of pain varies with tumor type, stage, and treatment modality, yet it consistently remains a major determinant of quality of life.[2] Despite advances in radiotherapy techniques that reduce normal tissue toxicity, a significant proportion of patients experience persistent or breakthrough pain that often remains underrecognized and undertreated.[5,6] Globally, cancer pain has been estimated to affect between 30–70% of patients depending on disease stage and treatment setting, with higher rates among those with advanced or metastatic disease.[7] The International Association for the Study of Pain defines cancer pain

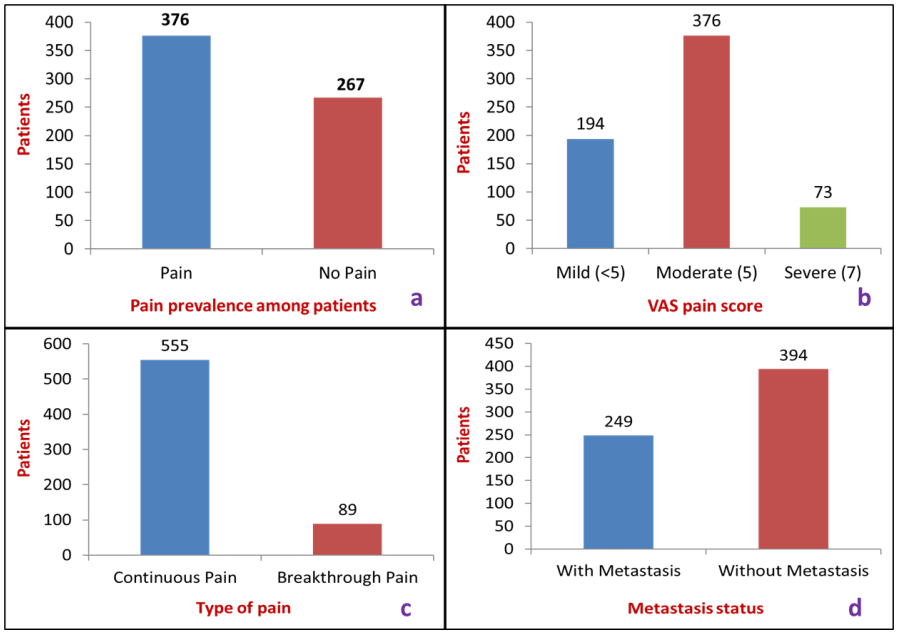
as a multifactorial experience arising from tumor burden, anticancer therapies, or associated comorbidities.[4] Several studies have emphasized that inadequate pain management remains a global challenge, with opioids underutilized in many parts of the world due to regulatory, cultural, and institutional barriers.[8]. Radiation therapy itself has dual implications: while it is highly effective for palliation of painful metastases, it may also worsen pain due to treatment-induced toxicities. [11,12] Previous reports have highlighted predictors of higher pain prevalence, including female gender, advanced age, comorbid illnesses, metastatic disease, and limited access to specialized pain services.[13,14] However, there is limited literature from resource-limited settings, where treatment accessibility may differ substantially.[15–17] Against this background, this study was designed to evaluate the type and prevalence of pain among patients attending a tertiary care radiation oncology unit.[19]

Materials and Methodology:

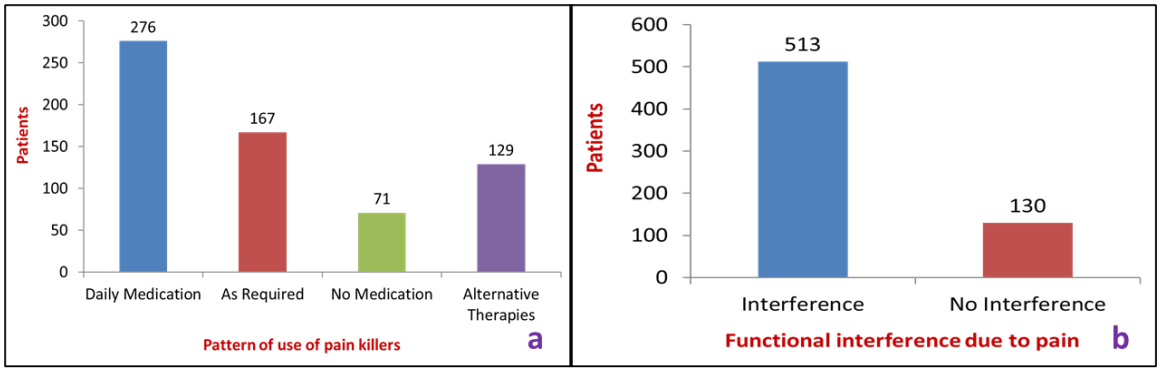
This was a single-center cross-sectional questionnaire-based study conducted over six months in a tertiary care radiation oncology department. A total of 643 patients were enrolled. The questionnaire included demographic details, primary disease site, metastasis status, prior surgery, consultation with pain physician, comorbid illnesses, current pain status, pain intensity (VAS), pain management practices, pain type, and its effect on daily life. Data were analyzed using descriptive statistics and chi-square test for categorical variables.

Results:

Out of 643 patients enrolled, 376 (58.5%) reported experiencing pain. Pain prevalence was highest among patients with breast and urogenital cancers. VAS scores indicated that 376 (58.5%) patients reported moderate pain (VAS 5), 73 (11.3%) had severe pain (VAS 7), and 194 (30.2%) reported mild pain (VAS < 5). Continuous pain was reported by 555 (86.2%) patients, while 89 (13.8%) experienced breakthrough pain. Among patients with metastasis, 249 (38.7%), pain prevalence was significantly higher compared to those without metastasis ($p < 0.05$, χ^2 test) as shown in Graph 1 and 2. Surgery was reported by 439 (68.3%) patients, but this was not significantly associated with pain prevalence ($p > 0.05$). Only 102 (15.8%) patients had consulted a pain physician, despite 376 reporting active pain. Medication use varied i.e 276 (43%) were on daily medication, 167 (26%) used analgesics as required, 71 (11%) did not use any medication, and the remainder used alternative therapies. A majority of patients (513, 79.8%) reported that pain interfered with daily life activities.



Graph 1: (a) shows the pain prevalence, (b) shows the overall VAS score, (c) shows the type of pain, (d) shows the status of metastasis.



Graph 2: (a) shows pattern of use of pain killers, (b) shows functional interference due to the pain.

Discussion:

This study demonstrates that pain remains a major concern in radiation oncology patients, with 58.5% reporting active pain. These findings align with global reports estimating prevalence between 30–70% depending on cancer type and stage. [1,2,7] Moderate pain was the predominant severity, consistent with earlier studies highlighting the high burden of untreated or under-treated cancer pain. [5,6] Continuous pain was more common than breakthrough pain, which contrasts with Western cohorts where breakthrough pain predominates. [9,10] Only 15.8% of patients had consulted a pain physician, reinforcing concerns regarding inadequate pain management infrastructure in oncology.[5,8,13] Our study also revealed that pain was significantly associated with metastasis ($p < 0.05$), echoing evidence from systematic reviews that metastatic disease is a strong predictor of cancer-related pain.[2,3] A majority of patients

reported impaired daily functioning, consistent with studies demonstrating that uncontrolled pain reduces quality of life and functional independence.[20,22]

Limitations:

This study has several limitations. It was conducted at a single center, limiting generalizability. Pain assessment relied on self-reported questionnaires, which may be subject to recall and reporting bias. Analgesic regimens were not standardized, and the study did not assess psychological factors contributing to pain perception. Future multi-center studies with longitudinal follow-up are warranted.

Conclusion:

Pain was reported by more than half of the radiation oncology patients, with continuous moderate pain being the most prevalent pattern. Pain was strongly associated with metastasis and substantially limited daily functioning. Despite this, only a small proportion consulted pain specialists. There is an urgent need for routine pain assessment and integration of palliative care into oncological practice.

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