

UPDATE OF THE QUALITY OF LIFE ISSUES EXPERIENCED BY PATIENTS WITH BONE METASTASES: A SYSTEMATIC REVIEW

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BACKGROUND AND PURPOSE

- Bone metastases (BM) is observed in around 30 to 75% of patients
- BM can lead to a wide variety of physical, functional, and psychosocial issues, which significantly affect patients’ quality of life (QoL).

Aim: to compile an updated list of QoL issues relevant to BM and its interventions.

METHODS

- Systematic literature review between 1946 and January 2023 in:
 - OVID MEDLINE
 - Embase
 - Cochrane Central Register of Controlled Trials databases
- Studies were included if they (1) discussed patients with BM and (2) reported original data on QoL issues or toxicities in patients

Figure 1: Literature Search using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Guidelines

Identification

Studies identified through online databases (n = 6195)

Duplicates removed (n = 1355)

Studies screened (n = 4840)

Studies excluded (n = 2293)

Studies sought for retrieval (n=2547)

Studies assessed for eligibility (n = 2547)

Studies excluded (n = 1959)
Editorial or Commentary (n = 55)
Review Article (n = 804)
Trial Protocol (n = 162)
Molecular Study(n = 2)
Clinical Guideline (n = 28)
Non-English Article (n = 3)
Full-text unavailable (n = 96)
Only abstract available (n = 566)
Wrong patient population (n=35)
Does not report on patient-reported outcome (n = 132)
Study not on bone metastases-directed treatment (n = 76)

Studies included in review (n = 588)

RESULTS

- 588 studies were included in the review and found patient-reported quality of life issues in physical, functional, and psychosocial domains.
- The most common physical issues were generalized pain, bone pain, interference with ambulation, fatigue, interference with daily activities, and back pain.
- The majority of identified QoL issues were found to already be represented in existing assessment tools, including pain, physical symptoms, interference with daily function, and psychosocial effects, but issues specific to treatments were not commonly seen.

Table 1. BM-Specific Quality of Life Issues

	Physical			Functional	Psychosocial		
Number of papers	Site of Pain	Nature of Pain	Physical Symptoms related to BM	-	Psychological Issues	Social Issues	Financial Issues
51+	Bone pain	Generalized pain	None	Interference with ambulation	None	None	None
41-50	None	None	None	None	None	None	None
31-40	None	Back pain	Fatigue	Interference with daily activities	None	None	None
21-30	None	None	Swelling or Mass or Bump	Limited range of motion of limbs Interference with sleep	None	None	None
11-20	Hip pain	Breakthrough pain	Change in appetite Constipation Dyspnea Urinary symptoms Nausea	Interference with self-care activities Interference with strenuous activity	Helplessness Distress Depression Anxiety Negative perception of emotional well-being	Interference with social activities Interference with personal relationships	Financial burden due to disease or treatment
1-10	Skull pain Nasal pain Neck pain Shoulder pain Arm pain Hand pain Chest pain Pelvic pain Buttocks pain Thigh pain Leg pain Knee pain Foot pain	Neuropathic pain Intermittent pain Chronic pain Mechanical pain	Dyspepsia Weakness Limb twitching Diarrhea Cranial nerve palsy Dizziness Drowsiness Dry mouth Edema Limb weakness Numbness Headache Altered taste Vomiting Weight changes Stiffness Fecal incontinence	Interference with lying down Interference with sitting Interference with standing Interference with performing family role Interference with work Interference with sexual activity	Feeling lost Lack of motivation Anger or Frustration Negative perception of physical well-being Feeling dependent on analgesics Worry about loss of mobility Lack of satisfaction with care Worry about progression of disease Worry about dependence on others	Feeling a burden to family or caregiver Spiritual concerns	None

Table 2. Treatment-Related Quality of Life Issues

Number of papers	Radiotherapy (n=160)	Surgery (n=103)	Bone-Modifying Agents (n=108)	Radionuclides (n=146)	Image-guided Ablation (n=44)	Percutaneous Cementoplasty (n=78)
21-30	None	None	Nausea Flu-like symptoms Fatigue	None	None	None
11-20	Nausea	Wound complications	Vomiting Osteonecrosis of the jaw symptoms	Bone pain flare	Post-procedural pain flare	None
1-10	Vomiting Skin reactions Pain flare Diarrhea Fatigue Chest symptoms Dysphagia Fever Constipation Urinary symptoms Insomnia Dry mouth	Post-operative swelling Pain on mobilization Paralysis of limbs Inability to bear weight	Diarrhea Constipation Loss of appetite Pain flare Edema Dyspnea Dyspepsia Abdominal Pain Rash Dizziness or vertigo Headache Pins and needle sensations Gastric Reflux Dry mouth	Nausea Fatigue Diarrhea Vomiting Fever Constipation Dizziness or vertigo Abdominal discomfort Altered taste Loss of appetite Dry mouth	Skin burn Nausea Vomiting Fever Numbness at injection site Fatigue	Pain or discomfort at injection site Loss of appetite Fever Nausea

DISCUSSION AND CONCLUSIONS

- This systematic review compiled a comprehensive list of QoL issues for patients with BM.
- These results highlight that QoL issues specific to patients with BM have expanded over time, due to the advancements in BM-directed treatments.
- An update of BM-specific QoL tools based on this list is recommended to ensure they comprehensively capture the QoL issues faced by patients, especially those that relate to the newest BM-directed treatments.