INCIDENCE OF SPINAL METASTASES AND TO OBSERVE THE QUALITY OF LIFE (QOL) OF PATIENTS WITH A METASTATIC SPINAL TUMOR.

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ABSTRACT

Background: Spine metastases (SM), the last stage cancers are known as the terminal stage of the primary tumor with severe symptoms in almost 10% of SM cases. Until now, no proven curative treatment for spinal metastases so, the topic is frequently debatable to improve the quality of life (QOL) and to provide the relief of the symptoms in the spinal patients.
Objectives: The aim of this study to observe incidence of Spine Mets in Cancer patients and to perform a quality assessment of a patient's life with vertebral metastases and indicating the available management options.
Methods: All the patients of metastatic spinal disease from entire over the Punjab who went to our department were approached to settle the survey before getting the treatment and after accepting the treatment. Just those patients incorporated the investigation who got 35Gy per 12 fractions (3500cGy/12 fractions) treatment dosage**.**
Results: succeeding common areas were T/L spine [n=59, 22.8%], L/S spine [n=23, 8.58%], C/T spine [n=12, 4.48%], cervical and T/L/S spine [n=8, 2.99%], C/T/L spine [n=4, 1.49%] and sacral spine [n=3, 1.12%].
Conclusion: There is affirmative proof that the multidisciplinary approach must be employed for governing the metastatic tumor to the spine.

Keywords: Spine metastases; QOL; Management; Multidisciplinary approach; PRISMA standards

How to cite this article: Khan IM, Farooq MH, Aisha NM, Zainab T**.** Management of spinal metastases and the assessment of the Quality of Life (QOL) of patients with a Metastatic Spinal Tumor. Pak Postgrad Med J 2023;35(2): 60-63

DOI: https://doi.org/10.51642/ppmj.v35i02.598

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INTRODUCTION

Cancers are the second common causal agent resulting in death. WHO estimates that 70% of world deaths attributable to cancer occur in low and medium-income countries (LMICs), and yearly more than 60% of world new cases occur in Asia, Central, and South America, and Africa.[3] In patients with advanced cancers, bone is the third common location of metastases and the spine does most frequently involve in bony metastases.[1,2] With the inordinate gain in the incidence rate of cancer combined with rectifying survival rate, the number of patients with spine metastases will keep increasing.[4] Spine metastases have a unique clinical status compared to bone metastases of other sites as they can cause a highly severe and destructive complication of "neurological impairment" through spinal cord compression and nerve root compression, in which patients must be treated on an emergent basis.[5,6,8] Therefore, the patients with vertebral metastases can have crippling back pain and neurological deficit which in return can compromise their performance status and quality of life.[7-10]

In the process of evaluation of treatment choices and to assist the medical practitioners, the prognostic grading systems

have been developed. These grading systems help the oncologists and doctors by providing information about pain relief, neurological improvement, regaining spine stability, morbidity, and mortality. Knowing these factors, we can also improve the quality of life of patients by providing the right treatment considering the patient's condition.[11-12]

OBJECTIVE

The aim of work is to research the incidence of spine metastasis in cancer from multiple diagnosis and perform a quality assessment of a patient's life with spinal metastases and the contribution of commonly available medical treatments in the management of spine metastases.

METHODS

All the patients of metastatic spinal disease from Punjab who went to our department were approached to settle the survey before getting the treatment and after accepting the treatment. Twenty patients with spine metastases who received the radiotherapy treatment within the duration of 1 year (Oct. 2019 - Oct. 2020) at the Department of Radiation Oncology Jinnah Hospital Lahore (DRO, JHL) were comprised. The patients of all ages and both genders who completed the SOSG – OQ survey were incorporated. Just those patients incorporated the investigation who got 35Gy per 12 fractions (3500cGy/12 fractions) treatment dosage.

There was no limitation for the consideration of patients concerning the primary tumor types, past treatment, and stage of the disease. Information was gathered through directly interviewing patients. We read or translated the questionnaire in Urdu (national) / Punjabi (local) language for the patients or their attendants who couldn't peruse or comprehend the English language. Each meeting required 15-25 minutes to be finished. Baseline characteristics were acquired from the clinical records of the patients accessible at the DRO, JHL. The result measures comprised of patient's age, sex, primary tumor type, mediation for primary, secondary tumor location on spine, presenting complaints, neighborhood, treatment dose, and the presence of metastases other than SM.[13-15]

This study was carried out at the Department of Radiation Oncology Jinnah Hospital, Lahore, and was approved by the hospital ethical committee. The consent forms were designed in our national language, Urdu, for better communication. The consent form was prepared according to the guidelines of the ethical committee. The guidelines of the Helsinki Declaration were followed in conducting this research work. The consent forms were signed by the participants to accept the use of their medical records and interview data.

RESULTS and DISCUSSION

The main primary sites of neoplasia were breast [n=63, 23.5%], prostate [n=33, 12.3%], lung [n=27, 10.1%], HCC [n=18, 6.72%], head & neck [15, 5.60%], MM [15, 5.60%], RCC [11, 4.10%], Sarcoma [7, 2.61%], skin [6, 2.24%], NHL [5, 1.87%], HL [4, 1.49%] and leukemia [4, 1.49%]. Fifteen other patients had other primary cancers (colon, bladder, cervix, pancreas, rectum, endometrium, malignant melanoma and seminoma). Four patients had poorly differentiated carcinoma. In 24 (8.96%) patients primary was unknown and 17 (6.34%) patients were in the unsteady ailment so biopsy wasn't possible.

The mediations for the primary tumor were taken by 242 (90.3%) patients. The surgical method alone was done in 56 (20.9%) patients, 88 (32.8%) patients got chemotherapy alone and 11 (4.10%) patients got radiotherapy alone. Combined surgery and chemotherapy were done in 50 (18.7%) patients, 12 (4.47%) patients were given chemotherapy and radiotherapy and 7 (2.62%) patients were treated with radiotherapy combined with surgery. Eighteen patients got each of the three interventions for the local control of primary cancer.

The most widely recognized introducing grievance was neck, back, or leg pain, lodged by 113 (42%) patients. The subsequent regular was the shortcoming of lower limbs introduced by 43 (16%) patients. Swelling or lump was found in 24 (9%) patients. The patients who whine of paraplegia and paraparesis were 23(8.58%) and 19 (3.4%), respectively. Different grumblings included constipation, urine frequency, cough with sputum, and on and off fever.

Thoracic spine was most commonly influenced by metastatic tumor with 74 (27.6%) cases. The subsequent frequent was lumbar spine [n=64, 23.9%]. The succeeding common areas were T/L spine [n=59, 22.8%], L/S spine [n=23, 8.58%], C/T spine [n=12, 4.48%], cervical and T/L/S spine [n=8, 2.99%], C/T/L spine [n=4, 1.49%] and sacral spine [n=3, 1.12%]. The multi vertebral levels were engaged with 13 (4.8 The patients of around 52 yrs. of age were at high-risk of spine metastases. Most patients, complaint of severe pain, weakness of lower limbs, paraplegia and paraparesis. Thoracic spine was most commonly affected followed by lumbar spine. The mean and median survival outcomes were 18.6 and 8 months, respectively. The survival rates were 75%, 59.3%, 43.7%, 21.9%, 15.6%, 12.5%, 6.25% and 3.13% at 3mn, 6mn, 1yr., 2yrs., 3yrs., 4yrs., 7yrs. and 10yrs., respectively.5%) patients. The finding was affirmed by bone scan in 120 (44.7%) patients. In the leftover patients the presence, definite

area and degree of metastases was affirmed by means of Computed tomography scans [n=32, 12%] and Magnetic resonance imaging scans [n=116, 43.3%].

Table: Secondary tumor assessment.

	N (%)	M (%)	F (%)
Number of patients	268 (100)	149 (55.6)	119 (44.4)
Complaints			
Pain (Neck / Back / Legs)	113 (42)	70 (47)	43 (36.1)
Lump or Swelling	24 (9)	4 (2.68)	20 (16.8)
Paraparesis	19 (3.4)	10 (6.71)	9 (7.56)
Paraplegia	23 (8.58)	15 (10.1)	8 (6.72)
Weakness in lower limbs	43 (16)	26 (17.4)	17 (14.3)
Urine & Bowel issues	15 (5.6)	8 (5.37)	7 (5.88)
Cough & Fever	13 (4.85)	9 (6.04)	4 (3.36)
Asymptotic	1 (0.37)	-	1 (0.84)
Location of the secondary tumor on the spine			
Cervical spine	8 (2.99)	3 (2.01)	5 (4.20)
Thoracic spine	74 (27.6)	46 (30.9)	28 (23.5)
Lumbar spine	64 (23.9)	33 (22.1)	31 (26.1)
Sacral spine	3 (1.12)	2 (1.34)	1 (0.84)
Cervico-thoracic spine	12 (4.48)	8 (5.37)	4 (3.36)
Thoraco-lumbar spine	59 (22.8)	31 (20.8)	28 (23.5)
Lumbo-sacral spine	23 (8.58)	9 (6.04)	14 (11.8)
Cervico-thoraco-lumbar spine	4 (1.49)	4 (2.68)	
Thoraco-lumbo-sacral spine	8 (2.99)	6 (4.05)	2 (1.68)
Multi-level	13 (4.85)	7 (4.70)	6 (5.04)
Metastases other than SM			
No other metastases	112 (41.8)	69 (46.3)	43 (36.1)
Bone metastases	89 (33.2)	56 (37.6)	33 (27.7)
Brain metastases	5 (1.87)	1 (0.67)	4 (3.36)
Liver metastases	2 (0.75)	-	2 (1.68)
Lung metastases	6 (2.24)	4 (2.68)	2 (1.68)
Multiple metastases	54 (20.1)	19 (12.8)	35 (29.4)
Metastatic Spinal Cord Compression			
Yes	46 (17.2)	29 (19.5)	17 (14.3)
No	222 (82.8)	119 (79.9)	103 (86.6)

CONCLUSION

Spinal metastases (SM) is a state with poor prognostication and the leading cause of mortality. The main goal of this study is to research the multiple vertebrae incidence due to metastatic disease and management options peculiarly for the forbearing of vertebral metastases. There is affirmative proof that the multidisciplinary approach must be employed for governing the metastatic tumor to the spine. In clinical decision-making, in SM patients the life expectancy and the assessment of QOL are vital needs. Prognostic scoring systems have aided the clinicians to estimate the patient's quality of life. Average pain response of 76.4% has been reported and the reported median overall survival ranged from 3 to 19 months by using different treatment modalities. However, the variation in results foregrounded the fact that the management of SM must be customized according to the patient's morbidity level and QOL.

DISCLOSURES

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

FUNDING

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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AUTHOR'S CONTRIBUTIONS

IMK: Concept, manuscript writing, research analysis and data analysis

MHF, NMA: Paper publication

TZ: Data collection