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Research Article

COMPARISON OF RUPEE SCALE AND VISUAL ANALOG SCALE IN ASSESSING PAIN IN CANCER

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ABSTRACT

Background: Pain is a common manifestation of cancer. The commonly used scales in measurement of pain intensity may not be easily understood by all. Also, the management of pain plays a vital role in cancer treatment and the accurate assessment of it is essential for appropriate management. In our study, Rupee scale was compared with the Visual Analog Scale (VAS) in measuring pain in patients with bone metastases

Objectives: To compare the Rupee scale and VAS for the measurement of pain in patients with painful bone metastases.

Methods: Eighty patients with painful bone metastases planned for Radiation therapy were included in the study. The measurement of pain in the patients was done using the VAS and Rupee scale. The assessment was done prior to initiating the treatment, on the day of completion of treatment, 1 week, 1 month, and 3 months post treatment. The scores obtained were subsequently compared.

Results: The scores obtained were similar in both the scales. The mean VAS score prior to treatment was 5.22. This dropped down to 2.87 on the day of completion of treatment, 1.56 at 1 week post treatment and further dropped to 0.78 at 1 month and 0.80 at 3 months post treatment. With the Rupee scale, the mean score prior to treatment was 54.09 and it reduced to 33.63 on the day of completion of treatment, 25.90 at 1 week, 12.72 at 1 month and 12.72 at 3 months post treatment. Thus, the Rupee Scale was found to be as effective as VAS in measuring pain intensity.

Conclusion: As the Rupee scale is better understood it can be used routinely in pain assessment in the Indian population.

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INTRODUCTION

Pain is a common manifestation of cancer and may be seen in 52% to 77% of the patients. Thirty three percent of the cancer patients suffer from chronic pain (Situ *et al*, 2012). Management of pain plays a vital role in cancer treatment. The pain may be managed as a part of curative treatment or the main component of palliation. For appropriate treatment, the assessment of pain accurately is crucial. Inappropriate assessment of pain may lead to either under-treatment with persistence of pain thus hampering the quality of life or over-treatment of pain which may lead to unnecessary side effects of the medication and wastage of resources.

Various scales are used in clinical practice for assessing the intensity of pain, like the Visual Analog Scale (VAS), Numerical Rating Scale (NRS), Verbal Rating Scale (VRS). VAS is a commonly used research tool for measurement of pain

(Lee *et al*, 2003). VAS is reliable and valid for measurement of chronic pain intensity. There have been studies demonstrating the validity of VAS for measurement of acute pain (Bijur *et al*, 2001).

For application of VAS, the patient would have to imagine his/her pain in terms of mathematical dimension which may not be possible for all the patients. This is especially true for the uneducated patients. There have been studies which have tried alternative scales for pain measurement which can be easily understood by all. Rupee scale is one of such which has been used for measurement of pain and also found useful in measuring the intentions, attitudes, emotions and patient's satisfaction. Rupee scale is easily understood by people in India as the pain is measured in terms of counting money. This study aims to compare the Rupee scale and VAS for the measurement of pain in patients with painful bone metastases.

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MATERIALS AND METHODS

A total of 80 patients with painful bone metastases planned for Radiation Therapy at the Department of Radiation Oncology, Father Muller Medical College Hospital, Mangalore were included in the study.

The measurement of pain in the patients was done using the VAS and Rupee scale. The assessment was done prior to initiating the treatment, on the day of completion of treatment, 1 week, 1 month, and 3 months post treatment.

The VAS consists of numbers from 0 to 10 with increments of 1, where 0 represents no pain and 10 represents the worst pain one could imagine. The score of 1 to 9 represents the variable severity of pain between the two extremes.

Rupee scale was divided as

- 0 paisa - no pain
- 25 paisa - mild pain
- 50 paisa - moderate pain
- 75 paisa - severe pain
- 100 paisa - worst imaginable pain

The patients taken up for the study were asked to quantify their pain by both the VAS and the Rupee scale. The intensity of pain thus obtained using the two scales were compared. Statistical analysis was done using VassarStats software. One-way ANOVA, Tukey HSD test were applied to the data.

RESULTS

Eighty patients were included in the study. Patient characteristics are given in table 1. The mean age was 54 years with 53% males and 47% females. Common sites of primary malignancy were breast (34%), lung (25%), head and neck (19%), prostate (13%). The metastases were commonly seen in the vertebrae with 28% metastases to thoracic vertebrae and 26% to the lumbar vertebrae.

Table 1 Patient Characteristics

Characteristics	n (%)
Age	54 years (mean)
Sex	
• Males	53%
• Females	47%
Primary site	
• Breast	34%
• Lung	25%
• Head and neck	19%
• Prostate	13%
• Others	9%
Site of metastases	
• Thoracic vertebrae	28%
• Lumbar vertebrae	26%
• Pelvis	23%
• Sternum	9%
• Others	14%

The mean VAS score prior to treatment was 5.22. It reduced to 2.87 on the day of completion of treatment and dropped to 1.56 at 1 week post treatment and further dropped to 0.78 at 1 month and 0.80 at 3 months post treatment. Similar results were obtained with the Rupee scale. The mean score prior to treatment was 54.09 and reduced to 33.63 on the day of

completion of treatment and dropped to 25.90 at 1 week, 12.72 at 1 month and 12.72 at 3 months post treatment.

Table 2 Comparison of the Two Scales

	VAS (0-10)	Rupee scale (0-100)	Correlation coefficient (r)	95% confidence interval	p value
Pre-treatment	5.22	54.09	0.7805	0.65-0.86	<0.0001
Day of completion of treatment	2.87	33.63	0.699	0.534-0.814	<0.0001
1 week post completion of treatment	1.56	25.90	0.6447	0.458-0.777	<0.0001
1 month post completion of treatment	0.78	12.72	0.8461	0.749-0.907	<0.0001
3 months post completion of treatment	0.80	12.72	0.922	0.87-0.95	<0.0001

Thus there was significant response to treatment (p < 0.0001) as was seen in both VAS and Rupee scale. The two scales were compared with each other. At all the 5 stages of assessment there was positive correlation between the two scales. The correlation coefficient value at pre-treatment, on the day of completion, 1 week, 1 month, 3 months post treatment were 0.7805, 0.699, 0.6447, 0.8461 and 0.922 respectively.

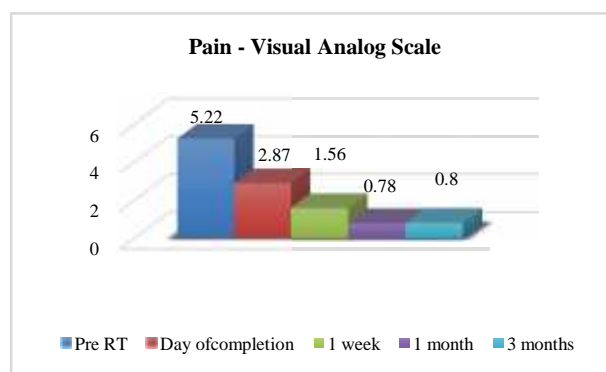


Figure 1 Visual Analog Scale

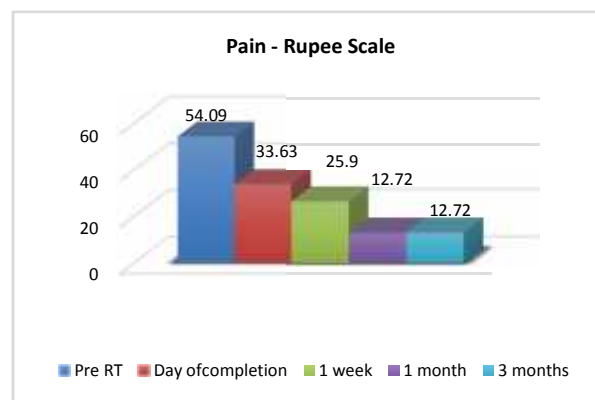


Figure 2 Rupee Scale

DISCUSSION

Accurate assessment of pain is crucial in the treatment of cancer. Pain is a subjective experience. The reporting of pain by the patient needs to be correct as the treatment relies on the intensity of pain. It has been previously reported that the assessment of pain by an observer and the patient do not correlate. The assessment done by medical staff tend to underestimate the pain levels (Kim et al, 2012). In our study the assessment of pain was done as reported by the patient.

The use of Rupee scale in the Indian population has already been described in various studies. (Chakraborty *et al*, 2006) used the Rupee scale for assessment of pain in post-operative patients and was found to be reliable. (Alghadir *et al*, 2015) used Hundred Paise Pain Scale (HPPS) in which the intensity of pain increased by 10 paise in contrast to our study in which it increased by 25 paise. The HPPS was used to measure the intensity of musculoskeletal pain comparing with VAS and NRS. They concluded that HPPS is valid, reliable, responsive, and in agreement with other scales. (Ghoshal *et al*, 2004) used the Rupee scale to quantify and percent symptom relief in locally advanced head and neck cancer patients treated with palliative radiotherapy. (Kapadia-Kundu *et al*,2006) discussed the use of Pachod Paise Scale in measuring the attitude, cultural beliefs, intention, and perceptions in the South Asian region. The intensity of pain as recorded by the VAS and Rupee scale were similar with no statistical difference between the two. Patients understood the Rupee scale better when compared to VAS. Thus the expressibility of the patients was better with Rupee scale. Positive correlation was seen between the two scales. Thus Rupee scale can be used to obtain similar results as that with the widely used VAS. Increments of 10 paise may be considered in the scale as used by (Alghadir *et al*, 2015) which may further increase the credibility and predictability of the scale.

CONCLUSIONS

Rupee scale is better understood by patients than the Visual Analog Scale. Assessment of pain by Rupee scale has positive correlation with that by Visual Analog Scale. Rupee scale can be considered as an alternative to Visual Analog Scale in the Indian population.

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