

## **Research Article**

### **Patient's perceptible of operative management in soft tissue sarcoma**

**Geetika Dhir<sup>1</sup>, Kavin Khatri<sup>2</sup>, Tajinder Bhalla<sup>3</sup>, Darsh Goyal<sup>4</sup>, Deepak Bansal<sup>5</sup>**

<sup>1</sup>Consultant pathologist, civil hospital, Ferozepur, India.

<sup>2</sup>Assistant professor, department of orthopaedics, GGS Medical College and hospital, BFUHS, Faridkot, Punjab, India.

<sup>3</sup>Junior resident, department of orthopaedics, Government medical college, Patiala, Punjab, India.

<sup>4</sup>Senior resident, sports injury centre, Safdarjung hospital, New Delhi.

<sup>5</sup>Consultant orthopaedician, AIMC Bassi hospital, Ludhiana, Punjab, India.

#### **\*Corresponding author**

Kavin Khatri

Email: [kavinkhatri84@gmail.com](mailto:kavinkhatri84@gmail.com)

---

**Abstract:** The expectations of the patient prior to surgical intervention can affect the final surgical outcome. This study evaluates the relationship between patient's outcome expectations and health related quality of index. The data was collected of 38 patients over four years and patient's expectations and functional outcome along with health related quality of life index was measured. Patients who were expecting difficult recovery and uncertain expectations had worse functional outcomes than patients anticipating early and easy recovery. Patients who had uncertain expectations shall benefit individualized preoperative education so as to improve their functional outcome.

**Keywords:** sarcoma; patient expectations; functional outcome.

---

#### **INTRODUCTION**

Extremity soft tissue sarcoma constitutes approximately 0.5 to 2 % of the cancer related deaths [1]. There is lot technological improvement which has result in decrease in mortality and good functional results [2- 4]. However still many patients report less than optimal functional results. Studies in other fields have shown that expectation of the patients can markedly affect the health outcomes [5]. The patients, who are motivated, have positive attitude and realistic expectations achieve better functional results as compared to those who have negative attitude towards life [6]. The results of post operative surgical outcome and patient's expectations have been evaluated in a number of surgical populations but there very few studies which have examined it in the context of limb salvage for soft tissue sarcoma. The aim of the study was to evaluate the expectations of the patient on post operative functional outcome and health-related quality of life in patients undergoing limb preservation surgery for extremity soft tissue sarcoma.

#### **MATERIAL AND METHODS**

The study was conducted with the approval of ethics committee of the institution and was performed according to the ethical standards of the 1964 declaration of Helsinki as revised in 2000. Over the course of four years (2011 to 2014), 51 patients of soft tissue sarcoma were treated with limb salvage surgery.

The patients treated with other methods or lost to follow up were excluded from the project. The hospital records were studied to determine the exact site of sarcoma, demographic data, treatment given, complications encountered and revision surgery if any required. The data regarding comorbid conditions was also collected.

The patients included in the study were adults aged greater than 18 years diagnosed as a case of primary or recurrent soft tissue sarcoma of upper or lower extremity and there was no recurrence at one year follow up. Patients with metastasis or underwent amputation were excluded from the study.

The patient expectations were recorded in the pre operative period using a questionnaire designed by Davidge K et al.; [7]. The components of patient's pre operative outcome expectations include length of recovery, complications and difficulty in performing daily activities [table I]. Musculoskeletal tumour society (MSTS) rating scale was used to measure the level of functional impairment [8]. It has seven parameters rated on a scale of 0-5 with maximum achievable score of 35. Another sarcoma specific Toronto extremity salvage scoring (TESS) was used to measure the activity limitations in the patients of sarcoma following operative management [9]. The patient's health related quality of life index preoperatively and post operatively at one year was also

recorded using a method developed by European quality of life visual analogue scale termed as EQ5D-VAS [ Its score ranges from 0 to 100 with higher score denoting the better health [10].

### Statistical analysis

The end point of study was findings noted at the time of last follow up. Data are presented as means± standard deviation. The relationship between expectations of the patient, functional outcome and health related quality of life index was assessed by one-way ANOVA and Tukey post hoc test. Multivariable regression analyses were performed to control for factors hypothesized to modify functional status in soft tissue sarcoma like age, size of tumour, complications, education of the patient and pre operative health related quality of life. The factors affecting expectations of the patient were evaluated using multinomial logistic regression.

### RESULTS

Out of 51 patients of soft tissue sarcoma, 38 met eligibility criteria. Six patients were lost to follow

up, three patients did not give consent for the study and four patients could not be traced due to wrong address or phone number in the hospital records. Among the 38 participants, 31.5 % were females (n=12) the age of patients in the cohort ranged from 18 years to 62 years with a mean of 46.4 years and standard deviation of 10.8. The other demographic parameters have been outlined in table I. Mean MSTS in preoperative and at the end of one year post operative period was 30.4±4.9 and mean TESS recorded was 85.8±17.2. The expectations regarding length of recovery significantly predicted both MSTS ( $p < 0.0001$ ) and TESS ( $p < 0.0001$ ) scores. The longer the expectation of recovery, lower the scores of functional outcome were noticed ( $p < 0.05$ ). Expectations for complications were not associated with MSTS, TESS or health quality of life index. The patients who had expected difficulty with daily activities had lower functional scores. After multivariate analysis it was seen that the expectation for ability to perform activity was single predictor of MSTS and TESS scores at final follow up. The expectations of the patient were not predictor of quality of life.

**Table-1: Patient Demographics**

Parameter	Value
Age at diagnosis	46.4±10.8 years
Gender : male	26
female	12
Comorbidities:	
Less than two in number	21(55.2%)
More than two in number	12(31.5%)
Tumour type	
Malignant fibrous histiocytoma	17
Liposarcoma	8
Leiomyosarcoma	10
Other histology	3
Anatomic location of tumour	
Upper extremity	11
Lower extremity	27
Presenting status	
Primary	31
Local recurrence	7
American joint committee on cancer staging	
Stage Ia	24
Stage Ib	7
Stage IIa	45
Stage IIb	31
Stage IIc	3
Stage III	8
Post-operative complications	
Yes	14
No	24

**Table-2: The expectations of the patients prior to surgery**

Patient's expectations	Percentage of cases
Time to recover	
2 months	48%
4 months	8%
8 months	4%
12 months	3%
Never	7%
Don't know	30%
Complications	
Yes	54%
No	14%
Don' know	32%
Difficulty with routine activities	
No difficulty	50%
Some difficulty	30%
Extremely difficult	1%
Don't know	29%

**Table-3: Predictor of functional outcome and health related quality of life index using multivariable regression Model**

Model	Standardized $\beta$	F value	P value
TESS* at one year			
Baseline TESS	0.604	52.1	<.001
MSTS** at one year			
Activity expectations	-0.311	10.67	.0015
Baseline MSTs	0.319	10.4	.0019
EQ5D-VAS# at 1 year			
Complications	0.291	7.79	.0062
EQ5D-VAS at baseline	0.331	10.28	.0018

\*TESS- Toronto Extremity Salvage Score; \*\*MSTS, Musculoskeletal Tumor Society Rating Scale; #EQ5D-VAS- Health related quality of index visual analogue scale.

## DISCUSSION

There are studies evaluating the patient's expectations in surgical populations but there are very few studies evaluating the same in soft tissue sarcoma groups [11, 12]. In our study the patients had expected good quality of life in spite of the fact that there was no pre operative education regarding the treatment of extremity soft tissue sarcoma. In our study it was seen that patients with high expectations regarding the operative outcome had good functional outcome in the post operative period. The patient who had expected no problem subsequent to the procedure indeed reported best results at the time of last follow up.

However, patient's expectations regarding length of recovery and complications did not significantly predict the functional outcome in multivariate analysis. It shows that different expectations may have differential impact on the final functional outcome. Similarly, the patient's expectations for the activity performance could not predict post operative activity limitation. Studies in other surgical populations have also reported difference in patient's expectations and functional outcome in few aspects [13].

The present study also failed to find any relationship between health quality of life index and preoperative expectation of the patients. The plausible explanation for the same could be that the health quality of index incorporates the complete sense of well being of the patient including physical, social and mental well being, which may have lesser impact on specific expectations of the patient. Other explanation could be that the specific outcomes like activity performance might not affect the global sense of well being. The sample size and absence of linear relationship patient's expectations and health related quality of life index are also the contributing factors. The stage at presentation had direct bearing on patient's expectations which is self explanatory. Age and gender showed no correlation to the patient's expectations.

Our study had some limitations which included validation of the preoperative questionnaire used. Further studies are required to check for reliability of the questionnaire. Additional work needs to be done to look for expectation to return to work or psychological stress. The sample size was small which is usual to find in these rare conditions. The variables used in the study

were taken from the previous experiences in other surgical populations [14-15]. The list of determinants is not comprehensive. The study didn't take into account the expectations derived from the surgeon, interpersonal relationships, interaction with other patients, etc. The present study may not have included all the possible factors in patient's expectations regarding the functional outcome in cases of soft tissue sarcoma but certainly provides base for conducting further research in this field.

#### CONCLUSION

The expectations of the patients can significantly affect the final functional result in a patient of soft tissue sarcoma. Patients who had expected good and speedy recovery had better functional outcomes as compared to those who didn't. Various additional patient and tumour related factors influenced the functional outcome. Preoperative education can help in achieving better functional outcomes in terms of patient satisfaction. However further studies are required to fully determine the relation between patient's expectations and surgical outcome.

#### REFERENCE

1. Tukiainen E, Bohling T, Huuhtanen R; Soft tissue sarcoma of the trunk and extremities. *Scand J Surg* 2003; 92:257–263.
2. Stinson SF, DeLaney TF, Greenberg J; Acute and long term effects of combined modality limb-sparing therapy for extremity soft tissue sarcoma. *Int J Radiat Oncol Biol Phys* 1991; 21:1493–1499.
3. Lindberg RD, Martin RG, Romsdahl MM, Barkley HT; Conservative surgery and postoperative radiotherapy in 300 adults with soft tissue sarcomas. *Cancer* 1981; 47(10):2391–2397.
4. Gustafson P, Arner M; Soft tissue sarcoma of the upper extremity: Descriptive data and outcome in a population-based series of 108 patients. *J Hand Surg Am* 1999; 24:668–674
5. Mondloch MV, Cole DC, Frank JW; Does how you do depend on how you think you'll do? A systematic review of the evidence for a relation between patients' recovery expectations and health outcomes. *CMAJ* 2001; 165:174–179.
6. Venkataramanan V, Gignac MA, Mahomed NN, Davis AM; Expectations of recovery from revision knee replacement. *Arthritis Rheum* 2006; 55(2):314–321.
7. Davidge K, Bell R, Ferguson P, Turcotte R, Wunder J, Davis AM; Patient expectations for surgical outcome in extremity soft tissue sarcoma. *J Surg Oncol.* 2009; 100(5):375–81
8. Enneking WF; Modification of the system for functional evaluation in the surgical management of musculoskeletal tumors. In: Enneking WF, editor. *Limb salvage in musculoskeletal oncology.* New York: Churchill-Livingston; 1987. pp. 626–639
9. Davis AM, Wright JG, Williams JI, Bombardier C, Griffin A, Bell RS; Development of a measure of physical function for patients with bone and soft tissue sarcomas. *Qual Life Res* 1996; 5(5):508–516.
10. Kar A; *An Introduction to Medicinal Chemistry.* 4th edition, New Age International Publishers, New Delhi, 2007: 199–202.
11. Brooks R, Rabin R, de Charro F; The measurement and valuation of health status using EQ-5D: A European perspective, Kluwer Academic Publishers, Boston, 2003.
12. Leedham B, Meyerowitz BE, Muirhead J, et al; Positive expectations predict health after heart transplantation. *Health Psychol* 1995; 14:74–79.
13. Burton KE, Wright V, Richards J; Patients' expectations in relation to outcome of total hip replacement surgery. *Ann Rheum Dis* 1979; 38:471–474.
14. Mahomed NN, Liang MH, Cook EF, Daltroy LH, Fortin PR, Fossel AH, et al.; The importance of patient expectations in predicting functional outcomes after total joint arthroplasty. *J Rheum* 2002; 29(6):1273–1279.
15. Mancuso CA, Salvati EA, Johanson NA; Patients' expectations and satisfaction with total hip arthroplasty. *J Arthroplasty* 1997; 12:387–396.
16. Mancuso CA, Sculco TP, Wickiewicz TL; Patients' expectations of knee surgery. *J Bone Joint Surg* 2001; 83-A: 1005–1012.