



SATISFACTION RATES POST TOTAL HIP REPLACEMENT IN PATIENTS OF AVASCULAR NECROSIS OF HIP

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ABSTRACT

Background: A study was conducted to evaluate patient satisfaction after total hip replacement in cases of avascular necrosis of the HIP in patients admitted in SAIMS Hospital, Indore. Patients reporting with avascular necrosis of femoral head were taken for study. **Material and Methods:** The Observational study which includes Prospective cases was conducted from December 2019 to November 2020 in Orthopaedic department of a tertiary care center of the metropolitan city of India. Overall 100 patients with unilateral Avascular Necrosis of Femoral Head were operated with Total Hip Arthroplasty via posterolateral approach (Southern Moore). Duration of the Study was 1 years. All patients of age between 20-80 years with unilateral Avascular necrosis of femoral head (grade III or IV) with normal septic profile and patients who are willing to undergo total hip arthroplasty according to our protocol between period December 2019 to November 2020 with no concomitant fracture or other injuries in the same limb were included in the study. **Results:** Patients were evaluated using WOMAC score. There was improvement of the score in all cases.

Conclusion: Total hip replacement is a boon for patients of advanced avascular necrosis of femoral head. Based on our experience in treating 100 cases of Unilateral Avascular necrosis of femoral head by total hip arthroplasty we conclude that In all patients WOMAC scores improved significantly one year postoperatively.

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INTRODUCTION

In the era of increased healthcare services marketing, patient satisfaction has been identified as an essential indicator for measuring the quality of care [1]. The term "patient satisfaction" was previously defined as the patient's reaction to several aspects of their service experience [2]. The use of patient satisfaction surveys has allowed patients to provide a more holistic evaluation of services and enlighten clinicians on various methods to refine their practice. Patient satisfaction data can also be applied to the development of new guidelines for the identification of deficiencies, achievements, and improvements in quality of care and health service delivery [3]. As patient satisfaction data have become a critical component of orthopedic surgery registry data [4], clinicians must continue to closely evaluate its involvement in the patient care experience.

Normal hip joint is subjected to various stresses and strains during every day activities performed by an individual. As hip joint is one of the major weight bearing joints of the body, its physiologically normal functioning is essential for peaceful and enjoyable day-to-day life.

Avascular necrosis of the femoral head is one of the common causes of painful hip in a young adult [5]. The natural course of this disease is one of relentless progression with eventual collapse of the femoral head, followed by secondary osteoarthritic changes in the hip [6]. Hip osteoarthritis is a frequent and disabling disease, and its prevalence is increasing [7]. It predisposes an individual for physical disability [8].

Management varies depending upon the age of the patient, stage of the AVN, occupation & previous treatment received etc. Core decompression, bone grafting and valgus osteotomy can be considered in early stages and total hip arthroplasty in later stages of AVN of femoral head [9]. Arthrodesis can be considered in young vigorous patients with unilateral hip disease especially in males [10]. Excision arthroplasty which gives mobility at the cost of stability is also an alternative available. Various other treatment options have been tried in the past and few therapies are at current research stage (eg – Stem cell transplant), but the definitive treatment of avascular necrosis of the femoral head is Total Hip Replacement as evidenced by empirical studies till date [11]. Total hip arthroplasty (THA) is now the most widely used surgical procedure in the treatment of avascular necrosis (AVN) of the femoral head [12].

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Patient satisfaction has been measured in multiple orthopaedic procedures, including total hip arthroplasty. THA is a common surgical procedure that improves the lives of patients with end-stage arthritis by decreasing pain, and improving motor function and mobility as measured by validated health-related outcome tools [13]. An emerging area of research lies in the identification of determinants of patient dissatisfaction [14], which may offer new improvement perspectives in quality of care.

The purpose of this review paper is to aggregate the available literature regarding the major factors associated with THA patient satisfaction. The first objective of this study was to identify preoperative predictors and postoperative determinants of satisfaction one year after THA, including patients' and surgeons' expectations, and the second was to identify predictors and determinants of expectation fulfilment.

MATERIAL AND METHODS

The Observational study which includes Prospective cases was conducted from December 2019 to November 2020 in Orthopaedic department of a tertiary care center of the metropolitan city of India. Overall 100 patients with unilateral Avascular Necrosis of Femoral Head were operated with Total Hip Arthroplasty via posterolateral approach (Southern Moore). Duration of the Study was 1 years. All patients of age between 20-80 years with unilateral Avascular necrosis of femoral head (grade III or IV) with normal septic profile and patients who are willing to undergo total hip arthroplasty according to our protocol between period December 2019 to November 2020 with no concomitant fracture or other injuries in the same limb were included in the study. The patients aged fewer than 18 years, patients with the positive septic screen, ankylosed hip, bilateral avascular necrosis of femoral head and patients who are not willing and unfit for surgical management according to our protocol were barred from the study. All arthroplasties were performed by the same groups of surgeons. Pre operatively WOMAC score for all the patients were calculated by filling a questionnaire. These patients were contacted by phone by an orthopedic resident at One and half month, 3 months, 6 months & 1 year after surgery and each was asked to answer a questionnaire assessing their satisfaction and function after undergoing the replacement. In terms of patient satisfaction, the questionnaire asked each patient to rate his or her level of satisfaction on a scale of 1–10 after 1 year of surgery. Lower scores (=1–6) were associated with some level of patient dissatisfaction while higher scores (=7–10) were considered “overall satisfied” with the THA [15]. Additionally, clinical function scores using the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) from the preoperative visit as well as One and half month, 3 months, 6 months & 1 year post-operative follow up time points were compared. The study was approved from the scientific committee of the University hospital and the patients provided written consent to participate to the study and to the follow-up evaluations.

RESULTS

Table No 1 Distribution of patients according to age

Age	Number	Percentage
20-40 years	15	15.0
41-60 years	52	52.0
61-80 years	33	33.0
Total	100	100.0

The above table shows the distribution of patients according to age.

There were 15 (15.0%) patients in the age group 20-40 years, 52 (52.0%) patients in the age group 41-60 years and 33 (33.0%) patients in the age group 61-80 years.

Majority of the patients were in the age group 41-60 years.

The mean age of the patients was 59.56 ± 14.74 years with a range from 20 to 80 years

Table No.2 Distribution of patients according to sex

Sex	Number	Percentage
Female	24	24.0
Male	76	76.0
Total	100	100.0

The above table shows the distribution of patients according to sex.

There were 24 (24%) females and 76 (76.0%) males in the present study, showing a male preponderance. The male: female ratio was: 3.17: 1.0.

Table No 3 Distribution of patients according to surgery

Surgery	Number	Percentage
THR Left	51	51.0
THR Right	49	49.0
Total	100	100.0

The above table shows the distribution of patients according to surgery. 51 (51.0%) patients had THR left and 49 (49.0%) patients had THR right.

Table No 4 Distribution of patients according to cause of AVN

Cause of AVN	Number	Percentage
Idiopathic	63	63.0
Steroid	23	23.0
Tobacco	8	8.0
Trauma	6	6.0
Total	100	100.0

The above table shows the distribution of patients according to cause of AVN.

In 63 (63.0%) patients the cause of AVN was idiopathic, in 23 (23.0%) it was steroid, in 8 (8.0%) it was tobacco and 6 (6.0%) patients it was trauma.

Idiopathic followed by steroid used were the most common causes of avascular necrosis.

Table No. 5 Distribution of patients according to complications

Complications	Number	Percentage
No complications	84	84.0
Dislocation	5	5.0
Radiculopathy	4	4.0
Infection	3	3.0
LLD < 3 cm	2	2.0
LLD > 3 cm	2	2.0
Total	100	100.0

The above table shows the distribution of patients according to complications.

In 84 (84.0%) patients there were no complications. In 5 (5.0%) patients there was dislocation, in 4 (4.0%) there was radiculopathy, in 3 (3.0%) there was infection and in 2 (2.0%) patients each there was limb length discrepancy of <3 cm and >3 cm respectively.

Dislocation and radiculopathy were more common, but overall the incidence of complications in our study was very less.

Table No. 6 Comparison of Mean WOMAC Score at different time intervals

Time Interval	No.	Mean ± SD	't' value	P value
Preoperative	100	61.17 ± 3.30		
At 1.5 months	100	45.28 ± 3.88	31.080, df=99	0.001*
At 3 months	100	45.28 ± 3.88		
At 3 months	100	31.18 ± 2.24	31.778, df=99	0.001*
At 3 months	100	31.18 ± 2.24		
At 6 months	100	18.55 ± 2.29	38.041, df=99	0.001*
At 6 months	100	18.55 ± 2.29		
At 12 months	100	12.81 ± 3.27	20.949, df=99	0.001*

Paired 't' test applied. P value < 0.05 was taken as statistically significant

The above table shows the comparison of mean WOMAC scores at different time intervals.

The mean preoperative WOMAC score was 61.17 ± 3.30, at 1.5 months it was 45.28 ± 3.88, at 3 months it was 31.18 ± 2.24, at 6 months it was 18.55 ± 2.29 and at 12 months it was 12.81 ± 3.27. There was a continuous decrease in the mean WOMAC score from preoperative time period to 12 months postoperative period. The comparison of mean WOMAC between any two follow-ups was found to be statistically significant (p<0.05), showing a significant lower mean WOMAC score with the increasing follow-up period.

Table No. 7 Distribution of patients according to patient satisfaction

Patient satisfaction	Number	Percentage
Dissatisfied (Score 1-6)	6	6.0
Satisfied (Score >7)	94	94.0
Total	100	100.0

The above table shows the distribution of patients according to patient satisfaction.

For evaluating the patient satisfaction a scale of 10 was used. A score of 1 to 6 was considered as 'dissatisfied' and a score from 7 to 10 was considered as 'satisfied'. Majority of the patients were satisfied with the outcome i.e. 94%.

DISCUSSION

TOTAL HIP ARTHROPLASTY remain one of the most successful orthopaedics procedures in term of Functional and Satisfactory outcome of the patients. TOTAL HIP ARTHROPLASTY is a common surgical procedure to improves the lives of patients with end-stage arthritis by decreasing pain, and improving motor function and mobility as measured by validated health-related outcome tools. By gaining knowledge about the satisfaction rate both pre operatively, post operatively and in subsequent follow up we can have access to deep knowledge of the factors affecting the outcome of surgery and possible measures can be taken to prevent serious complications.

In this study we aim to evaluate the satisfaction of patients undergoing total hip replacement in central India region of Indore Madhya Pradesh by using WOMAC scoring system and gaining knowledge about the possible factors affecting outcome of surgery Our study demonstrated that there is a

significant increase in satisfaction rate of patients undergoing Total Hip Arthroplasty both pre operatively and post operatively and in subsequent follow ups. There was a continuous decrease in the mean WOMAC score from preoperative time period to 12 months postoperative period. The comparison of mean WOMAC between any two follow-ups was found to be statistically significant (p<0.05), showing a significant lower mean WOMAC score with the increasing follow-up period.

Incidence of complication were very less in our study demonstrating Total Hip Arthroplasty. 84% of the population were having no complications and rest 16% with complications such as dislocation, radiculopathy, infection etc were having higher womac score resulting in less satisfaction as compare to patients with no complications.

The data collected in this study is assessed; analyzed, compared with other series, and results were evaluated.

The mean age of the patients in our study was 59.56 ± 14.74 years which is comparable to CLÉMENCE PALAZZO *et al* (2014) mean age in his study was 63.5 ± 13.5 years. JOSE M. QUINTANA *et al* (2012) mean age in his study was 68.93± 9.12 years. MATTHEW VARACALLO *et al* (2018) mean age in his study was 63.14+/-8.7 years. ZOE H. DAILIANA *et al* (2015) mean age in his study was 64.98 ± 11.1 years. MARION LINDNER *et al* (2018) mean age in his study was 67.4± 10.3 years.

There were 24 (24%) females and 76 (76.0%) males in the present study, showing a male preponderance. (3.17: 1.0) . there were 51% of patient undergoing left TOTAL HIP REPLACEMENT and 49% of patient have undergone TOTAL HIP REPLACEMENT right .Most common cause of Avascular Necrosis in our study was Idiopathic 63% followed by Steroid intake 23%.

In our study the mean preoperative WOMAC score was 61.17 ± 3.30, at 1.5 months it was 45.28 ± 3.88, at 3 months it was 31.18 ± 2.24, at 6 months it was 18.55 ± 2.29 and at 12 months it was 12.81 ± 3.27.

In 2014 CLÉMENCE PALAZZO *et al* conducted similar study and calculated mean pre operative and post operative WOMAC scores of 18.6 ± 5.5 and 5.5 ± 6.1 respectively which was comparable to our result.

In 2012 JOSE M. QUINTANA *et al* conducted similar study and calculated mean preintervention and postintervention WOMAC pain domain score of 54.30 ± 18.57 and 15.45± 16.76 respectively and mean preintervention and postintervention WOMAC functional limitation domain score of 64.39 ± 16.86 and 26.97 ± 18.73 which was comparable to our results

In 2018 matthew varacallo *et al* conducted similar study and calculated mean pre-operative WOMAC scores of 46.8 and the mean 3-month and 1-year post-operative WOMAC scores were 12.4 and 6.5 respectively which was comparable to our result

In 2015 ZOE H. DAILIANA *et al* conducted similar study and calculated mean pre operative WOMAC score of 61.3 ± 15.8 and mean 6-week, 3-months, 6-months and 1 year post operative WOMAC score were 47.1 ± 12.0, 30.9 ± 10.2, 18.1 ± 12.2 and 14.7 ± 9.7 respectively which was comparable to our result.

In 2018 MARION LINDNER *et al* conducted similar study and calculated mean pre-operative WOMAC scores of 58 and the mean 6-weeks and 3- months post-operative WOMAC scores were 30 and 25 respectively which was comparable to our result.

In our study 94.0 % of patients were satisfied after total hip arthroplasty and 6.0 % of patients were dissatisfied.

In 2014 CLÉMENTCE PALAZZO *et al* conducted similar study and calculated that 91.9% of patients were satisfied after THA and 8.1% were dissatisfied, Which was comparable to our result.

In 2012 JOSE M. QUINTANA *et al* conducted similar study and calculated that 85.51 % of patients were satisfied after THA and 14.49 % were dissatisfied, Which was comparable to our result.

In 2018 matthew varacallo *et al* conducted similar study and calculated that 98.0% of patients were satisfied after THA and 2.0 % were dissatisfied, Which was comparable to our result.

In 2015 ZOE H. DAILIANA *et al* conducted similar study and calculated 97.6 % of patients were satisfied after THA and 2.4 % were dissatisfied, Which was comparable to our result.

In 2019 ANNICK DEN DAAS *et al* conducted similar study and calculated 97.56 % of patients were satisfied after THA and 2.43 % were dissatisfied, Which was comparable to our result.

CONCLUSION

Based on our experience in treating 100 cases of Unilateral Avascular necrosis of femoral head by total hip arthroplasty we conclude that In all patients WOMAC scores improved significantly one year postoperatively, majority of patients undergoing Total Hip Arthroplasty were satisfied & there were various measures that can be done to improve satisfaction rate and thereby increasing lifestyle of patient and decreasing morbidity by achieving pre-disease state after replacement of Hip Joint with Artificial prosthesis. This satisfaction scale may be used in conjunction with other outcome instruments to more comprehensively evaluate the results of primary hip replacement surgery. It has been shown that patient satisfaction following surgery does not always correlate with surgeon assessments and this scale provides a simple instrument to explore the complex relationships between patient baseline pain, functioning, expectations of surgery, and satisfaction with outcome. Identification of any modifiable risk factor for patient dissatisfaction with surgery presents an opportunity of improving patients perceived outcomes.

The main determinant of dissatisfaction 1 year after THA was the lack of fulfilment of patients' expectations, independently of their preoperative level. Older age, worse mental wellbeing and disability were predictors of a poorer expectations' fulfilment after surgery. After surgery, expectations fulfilment was mainly determined by postoperative function and pain relief. Surgeons had more reliable expectations and should better inform their patients of the expected outcomes, particularly regarding relieving night pain and removing the need of a stick. This study also highlights the urgent need to develop a valid tool to standardize the assessment of expectations and of their fulfillment.

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