

Evidence of Efficacy of Cemented Versus Uncemented Fixation with Respect to Functional Outcome; A Comparative Study.

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ABSTRACT

Background: Total hip arthroplasty is one of the most successful and cost-effective surgical procedures and remains the treatment of choice for long-term pain relief and restoration of function for patients with diseased or damaged hips. The traditional method of fixation of an implant to bone involved the use of cement. The question regarding the efficacy of cemented as compared with cementless fixation arthroplasty continues. Comparisons of the efficacy of cemented and cementless total hip arthroplasty have been indirect or retrospective in nature without evolution of these issues: is one better than the other. In this study we are comparing functional outcome in cemented versus uncemented primary total hip arthroplasty. **Methods:** This study was conducted in the department of orthopedic surgery, L.L.R.M. Medical College, Meerut. The study was prospective and retrospective and included the patients operated from February 2011 onwards in S.V.B.P. Hospital. Patient were selected as per Inclusion and Exclusion criteria. All the patients were thoroughly examined including all injuries, abnormalities, pathologies and secondary changes of musculoskeletal system. Based on this, provisional diagnosis was made for every patient. They were divided into 2 groups, one who were operated by cemented THA and the second who were operated by uncemented THA. Patients in whom both cemented and uncemented THA were feasible, final decision to select the treatment was done by alternative case method. Pre and post-operative care were same for both groups. Patients selected for THA were put to pre surgery exercises. Their Harris Hip Score and SF36 score were documented. Patients were operated as given in pro forma. He or she was put to weight bearing / non weight bearing according to per op fixation. **Results:** The study comprises of a total of 44 patients presenting to S.V.B.P. Hospital, Meerut from August 2011 to October 2013. The mean age of the patients taken up for our study was 45.14 years with the youngest patient being 19 years old and the oldest being 70 years old. There were total 34 male patients (77%) and 10 female patients (23%) in our study. In total 50 operated hips, 26 (52%) were on right side while 24 (48%) were on left side. There were 38 cases, in which unilateral hip (86%) was operated and 6 cases (14%) had both hips operated. 3 cemented cases were bilateral and 3 uncemented cases were bilateral. Of the total (50) hips operated, 23 (46%) were operated by cemented total hip arthroplasty and 27 (54%) were operated by uncemented total hip arthroplasty. Of the total patients (44) operated, 20 (45) patients were operated by cemented total hip arthroplasty and 24 (55%) were operated by uncemented total hip arthroplasty. In all the 23 hips operated by cemented technique 28 mm head was used. In the 27 hips operated by uncemented technique, 28mm head was used in 8 hips (30%) and 36 mm head was used in 19 (70%) hips. The minimum duration of follow up was 2 months and maximum duration of follow up was 2 years. Patients were evaluated in pre op period and at 2 month, 6 month, 1 year and 2 year. Both cemented and uncemented groups were divided accordingly into 5 sub-groups for Harris Hip Score and 5 sub-groups for SF-36 Score. A total of 10 groups were available for Harris Hip Score and 10 groups for SF-36 Score in which comparison was done. Pre op Harris hip scores in both cemented (mean score 28.56) and uncemented (mean score 33.30) groups are poor and difference between them were not significant (P value 0.3536) and Pre op physical component summary score in both cemented (mean score 21.594) and uncemented (mean score 22.052) groups are poor and difference between them were not significant (P value 0.5661). Mean Harris hip scores for pre op, post op 2months, 6 months, 1 year and 2 years were 28.56, 80.56, 85.30, 86.88 and 89.40 respectively. When comparison was done between pre op Harris hip scores and post op scores, difference was extremely significant with a P value of 0.0004 for pre op and post op 4 year pair and P value of 0.0001 for all other pairs. Mean Harris hip scores for pre op, post op 2month, 6 month, 1 year and 2 year were 33.30, 85.70, 91.38, 93.06 and 89.29 respectively. When comparison was done between pre op physical component summary scores of sf-36 and post op scores, difference was extremely significant with a P value of 0.0001 for all the pairs. Mean physical component summary scores of SF-36 for pre op, post op 2month, 6 month, 1 year and 2 year were 21.594, 34.662, 38.190, 40.706 and 41.410 respectively and when comparison was done between pre op physical component summary scores of SF-36 and post op scores, difference was extremely significant with a P value of 0.0001 for all the pairs. Mean physical component summary scores of sf-36 for pre op, post op 2month, 6 month, 1 year and 2 year were 22.052, 38.935, 42.410, 45.206 and 43.557 respectively. **Conclusion:** Functional outcome evaluation in our study suggested that uncemented total hip arthroplasty is better than cemented total hip arthroplasty when compared using Harris Hip Score and Physical Component Summary Score of SF-36.

Keywords: Cemented, Total Hip Arthroplasty, Uncemented.

INTRODUCTION

Total hip arthroplasty is a reconstructive procedure that has improved the management of the diseases of the hip joint that have responded poorly to conventional medical therapy.^[5] It is one of the most successful and cost-effective surgical procedures and remains the treatment of choice for long-term pain relief and restoration of function for patients with diseased or damaged hips¹. The success of total hip replacement and the frequency in which it is performed are largely due to the development of the cemented low-friction arthroplasty.^[6]

Since the first total hip replacement performed by Charnley in the 1960s, many different types of prostheses have been used. The traditional method of fixation of an implant to bone involved the use of cement. However, in the 1980s, implant loosening and loss of bone stock, particularly in younger and more active patients, was seen with greater frequency. Osteolysis was once considered a 'cement disease', but now is believed to be a response to wear-debris particles. Therefore, the idea of implanting prostheses without cement and eventually having prostheses that can become part of the living body was most appealing. However, the popularity of non-cemented prostheses began to waver with cases of 'non-cement disease' with worse outcomes. As a result, the hybrid prosthesis, a procedure with the acetabular component uncemented and the femoral component cemented, appeared on the scene.^[1] The question regarding the efficacy of cemented as compared with cementless fixation arthroplasty continues.^[2] Comparisons of the efficacy of cemented and cementless total hip arthroplasty have been indirect or retrospective in nature without evolution of these issues: is one better than the other.^[3,4] In this study we are comparing functional outcome in cemented versus uncemented primary total hip arthroplasty.

MATERIALS AND METHODS

This study was conducted in the department of orthopedic surgery, L.L.R.M. Medical College, Meerut. The study was prospective and retrospective and included the patients operated from February 2011 onwards in S.V.B.P. Hospital. Inclusion criteria included patient agreed with and signed the informed consent form, patients above 18 years of age in which total hip arthroplasty is indicated, patients with severe radiographic changes that have progressed to the point of

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acetabular bone loss, follow up patients who have met the above criteria based on available medical records. Exclusion criteria included, patients with active sepsis of the hip joint and systemic sepsis, patients unfit for surgery, patients for Revision of Total Hip Arthroplasty, patients with physical and mental incapacity which make it impossible to obtain consent, intravenous drug abusers, patients with legal incompetence.

All the patients were thoroughly examined including all injuries, abnormalities, pathologies and secondary changes of musculoskeletal system. Based on this provisional diagnosis was made for every patient. All the medical records were obtained for previously operated follow up patients and they were included in the study if they met the inclusion criteria of the study.

Patients having osteoarthritis, rheumatoid arthritis, avascular necrosis, traumatic arthritis, protrusion acetabuli, certain hip fractures, arthritis associated with Paget's disease, ankylosing spondylitis or juvenile rheumatoid arthritis were selected for the study. They were divided into two groups, one who were operated by cemented THA and the second who were operated by uncemented THA. Patients in whom both cemented and uncemented THA were feasible, final decision to select the treatment was done by alternative case method. Pre and post-operative care were same for both groups. Patients selected for THA were put to pre surgery exercises. Their Harris Hip Score and SF36 score were documented. Patients were operated as given in pro forma. He or she was put to weight bearing / non weight bearing according to per op fixation.

RESULTS

The study comprises of a total of 44 patients presenting to S.V.B.P. Hospital, Meerut from August 2011 to October 2013.

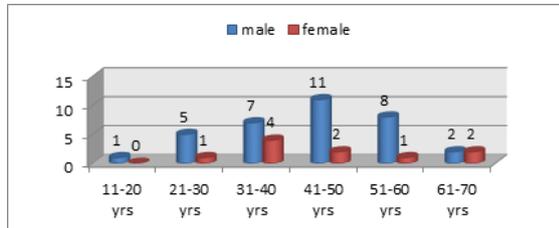
Gender distribution in different age groups

Table 1: Gender distribution in different age groups

Age (yrs)	Male	Female	Total
11-20	1	0	1
21-30	5	1	6
31-40	7	4	11
41-50	11	2	13
51-60	8	1	9
61-70	2	2	4
Total	34	10	44

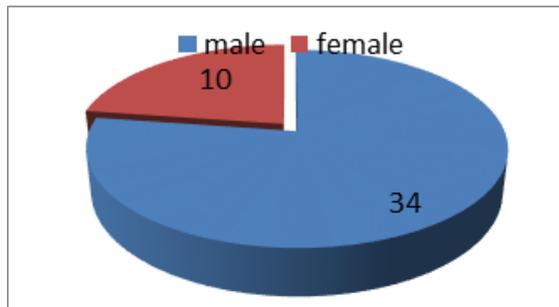
The mean age of the patients taken up for our study was 45.14 years with the youngest patient being 19 years old and the oldest being 70 years old. Youngest patient among females was 25 year old and oldest was 70 year old, while in case of males youngest patient was 19 year old while oldest was

70 year old. Maximum males (32%) were in age group 41-50; while maximum females (40%) were in age group 31-40. Mean age for the male patients was 45.00 years while the mean age for the female patients was 45.60 years. [Table 1 & Graph 1]
Graphical representation of gender in different age groups.



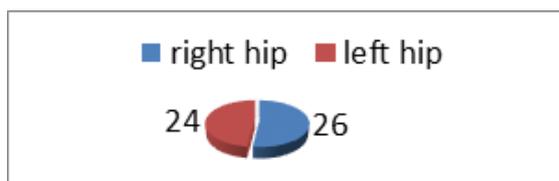
Graph 1: graphical representation of gender in different age groups

Gender wise distribution of patients
There were total 34 male patients (77%) and 10 female patients (23%) in my study. [Graph 2]



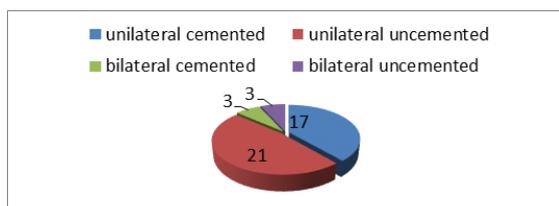
Graph 2: Gender wise distribution of patients

Graphical representation of side operated
In total 50 operated hips, 26 (52%) were on right side while 24 (48%) were on left side. [Graph 3]



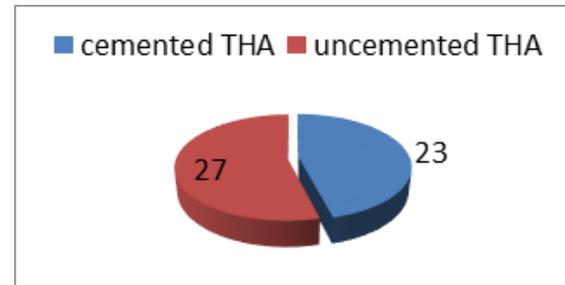
Graph 3: Graphical representation of side operated

Unilateral vs bilateral total hip arthroplasty
There were 38 cases, in which unilateral hip (86%) was operated and 6 cases (14%) had both hips operated. 3 cemented cases were bilateral and 3 uncemented cases were bilateral. [Graph 4]



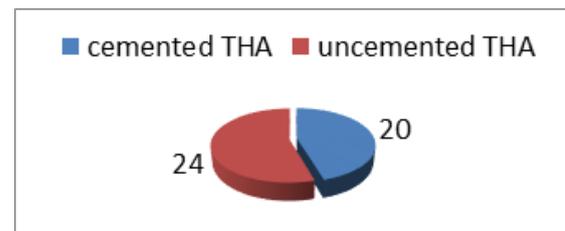
Graph 4: Unilateral vs bilateral total hip arthroplasty

Distribution of hips operated by cemented vs uncemented total hip arthroplasty
Of the total (50) hips operated, 23 (46%) were operated by cemented total hip arthroplasty and 27 (54%) were operated by uncemented total hip arthroplasty. [Graph 5]



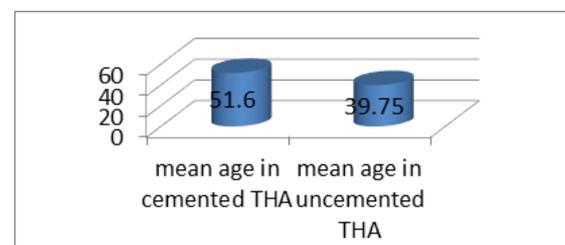
Graph 5: Distribution of hips operated by cemented vs uncemented total hip arthroplasty.

Distribution of patients operated by cemented vs uncemented total hip arthroplasty
Of the total patients (44) operated, 20 (45) patients were operated by cemented total hip arthroplasty and 24 (55%) were operated by uncemented total hip arthroplasty. [Graph 6]



Graph 6: Distribution of patients operated by cemented vs uncemented total hip arthroplasty.

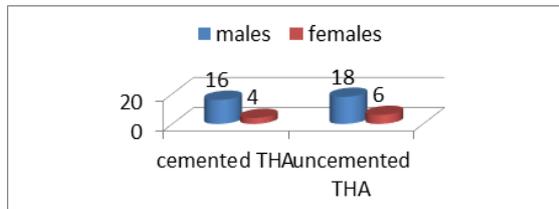
Age distribution of patients operated by cemented vs uncemented total hip arthroplasty
Age range of the patients operated by cemented technique was 23-70 years with mean age of 51.60 years and age range of the patients operated by uncemented technique was 19-57 years with mean age of 39.75 years. [Graph 7]



Graph 7: Age distribution of patients operated by cemented vs uncemented total hip arthroplasty.

Sex distribution of patients operated by cemented vs uncemented total hip arthroplasty
Of the total 20 patients operated by cemented total hip arthroplasty 4 (20%) were females and 16 (80%) were males. Of the total 24 patients operated

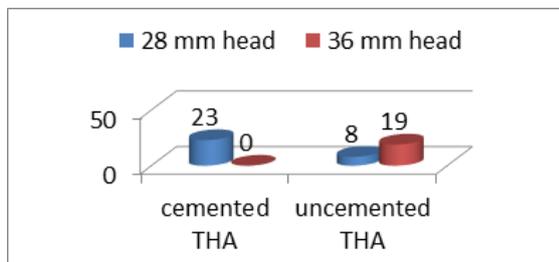
by uncemented total hip arthroplasty 6 (25%) were females and 18 (75%) were males. [Graph 8]



Graph 8: Sex distribution of patients operated by cemented vs uncemented total hip arthroplasty.

Head size distribution in cemented vs uncemented total hip arthroplasty

In all the 23 hips operated by cemented technique 28 mm head was used. In the 27 hips operated by uncemented technique, 28mm head was used in 8 hips (30%) and 36 mm head was used in 19 (70%) hips. [Graph 9]



Graph 9: Head size distribution in cemented vs uncemented total hip arthroplasty

Graph 10: Follow up for cemented total hip arthroplasty

Groups	Number Of Patients
Group 1 (Pre Op)	16
Group 2 (Post Op 2 Month)	16
Group 3 (Post Op 6 Month)	20
Group 4 (Post Op 1 Year)	17
Group 5 (Post Op 2 Year)	10

Graph 11: Follow up for uncemented total hip arthroplasty

Groups	Number Of Patients
Group 6 (Pre Op)	23
Group 7 (Post Op 2 Month)	23
Group 8 (Post Op 6 Month)	21
Group 9 (Post Op 1 Year)	16
Group 10 (Post Op 2 Year)	7

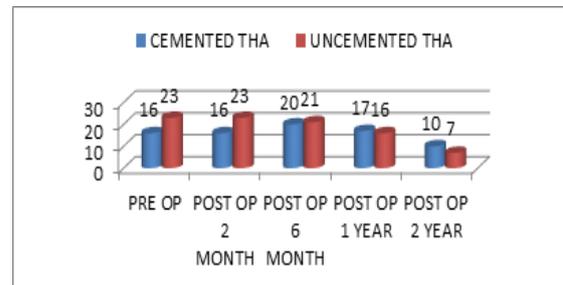
Duration of follow up

The minimum duration of follow up was 2 months and maximum duration of follow up was 2 years. (graph.10.11). Patients were evaluated in pre op period and at 2 month, 6 month, 1 year and 2 year. Both cemented and uncemented groups were divided accordingly into 5 sub-groups for Harris Hip Score and 5 sub-groups for SF-36 Score. A total of 10 groups were available for Harris Hip

Score and 10 groups for SF-36 Score in which comparison was done.

Follow up for cemented total hip arthroplasty.

Graphical representation of number of patients during different follow ups



Graph 12: Graphical representation of number of patients during different follow ups.

Table 2: Cemented Vs Uncemented THA (Harris Hip Scores Unpaired t-test).

Pa ir	Group	Me an	N	Stand ard deviat ion	Stand ard error of mean	P value / significance
Pai r 1	Cemente d THA Pre Op	28.56	16	15.03	3.76	0.3536 not statistically significant
	Unceme nted THA Pre Op	33.30	23	15.82	3.30	
Pai r 2	Cemente d THA Post Op 2 month	80.56	16	6.95	1.74	0.0642 not quite statistically significant
	Unceme nted THA Post Op 2 month	85.70	23	9.05	1.89	
Pai r 3	Cemente d THA Post Op 6 month	85.30	20	6.55	1.47	0.0083 very statistically significant
	Unceme nted THA Post Op 6 month	91.38	21	7.41	1.62	
Pai r 4	Cemente d THA Post Op 1 year	86.88	17	7.85	1.90	0.0275 statistically significant
	Unceme nted THA Post Op 1 year	93.06	16	7.47	1.87	
Pai r 5	Cemente d THA Post Op 2 year	89.40	10	8.58	2.71	0.9817 not statistically significant
	Unceme nted THA Post Op 2 year	89.29	7	11.64	4.40	

Comparison of Harris Hip Scores between Cemented and Uncemented Total Hip Arthroplasty In this study functional outcome was assessed in the immediate pre op period and at 2 month, 6 month, 1 year and 2 year post op.

From the above table we can easily say that pre op Harris hip scores in both cemented (mean score 28.56) and uncemented (mean score 33.30) groups are poor and difference between them is not significant (P value 0.3536). [Table 2]

When we compared the scores at 2 months, mean Harris hip score in the uncemented group (85.70) was better than cemented group (80.56) but the difference was not quite statistically significant (P value 0.0642).

At 6 months mean Harris hip score in the uncemented group (91.38) was better than cemented group (85.30) and the difference was very statistically significant (P value 0.0083).

At 1 year mean Harris hip score in the uncemented group (93.06) was better than cemented group (86.88) and the difference was statistically significant (P value 0.0275).

At 2 year mean Harris hip score in the uncemented group (89.29) was almost equal to cemented group (89.40) and the difference was not statistically significant (P value 0.9871). This discrepancy was due to low sample size at 2 year follow up with only 7 patients in the uncemented group and 10 patients in cemented group.

Comparison of Physical Component Summary Scores of SF-36 between Cemented and Uncemented Total Hip Arthroplasty

Physical component summary score of sf-36 was recorded in the immediate pre op period and at 2 month, 6 month, 1 year and 2 year post op.

From the following table we can easily say that pre op physical component summary score in both cemented (mean score 21.594) and uncemented (mean score 22.052) groups are poor and difference between them is not significant (P value 0.5661).

When we compared the scores at 2 months, mean score in the uncemented group (38.935) was better than cemented group (34.662) but the difference was statistically significant (P value 0.0119).

At 6 months mean score in the uncemented group (42.410) was better than cemented group (38.190) and the difference was statistically significant (P value 0.0103).

At 1 year mean score in the uncemented group (45.206) was better than cemented group (40.706) and the difference was statistically significant (P value 0.0165).

At 2 year mean score in the uncemented group (43.557) was better than cemented group (41.410) but difference was not statistically significant (P value 0.3521). This discrepancy was due to low sample size at 2 year follow up with only 7 patients in the uncemented group and 10 patients in cemented group.

Table 3: Cemented THA (Harris Hip Scores Paired t-test).

Pair	Group	Mean	N	Standard deviation	Standard error of mean	P value / significance
Pair 1	Pre Op	28.56	16	15.03	3.76	0.0001 extremely statistically significant
	Post Op 2 Month	80.56	16	6.95	1.74	
Pair 2	Pre Op	28.56	16	15.03	3.76	0.0001 extremely statistically significant
	Post Op 6 Month	85.30	20	6.55	1.47	
Pair 3	Pre Op	28.56	16	15.03	3.76	0.0001 extremely statistically significant
	Post Op 1 Year	86.88	17	7.85	1.90	
Pair 4	Pre Op	28.56	16	15.03	3.76	0.0001 extremely statistically significant
	Post Op 2 Year	89.40	10	8.58	2.71	
Pair 5	Post Op 2 Month	80.56	16	6.95	1.74	0.1017 not statistically significant
	Post Op 6 Month	85.30	20	6.55	1.47	
Pair 6	Post Op 2 Month	80.56	16	6.95	1.74	0.0430 statistically significant
	Post Op 1 Year	86.88	17	7.85	1.90	
Pair 7	Post Op 2 Month	80.56	16	6.95	1.74	0.1170 not statistically significant
	Post Op 2 Year	89.40	10	8.58	2.71	
Pair 8	Post Op 6 Month	85.30	20	6.55	1.47	0.2570 not statistically significant
	Post Op 1 Year	86.88	17	7.85	1.90	
Pair 9	Post Op 6 Month	85.30	20	6.55	1.47	0.0297 statistically significant
	Post Op 2 Year	89.40	10	8.58	2.71	
Pair 10	Post Op 1 Year	86.88	17	7.85	1.90	0.0450 statistically significant
	Post Op 2 Year	89.40	10	8.58	2.71	

Table 4: Uncemented THA (Harris Hip Scores Paired t-test)

Pair	Group	Mean	N	Standard deviation	Standard error of mean	P value / significance
Pair 1	Pre Op	33.30	23	15.82	3.30	0.0001 extremely statistically significant
	Post Op 2 Month	85.70	23	9.05	1.89	
Pair 2	Pre Op	33.30	23	15.82	3.30	0.0001 extremely statistically significant
	Post Op 6 Month	91.38	21	7.41	1.62	
Pair 3	Pre Op	33.30	23	15.82	3.30	0.0001 extremely statistically significant
	Post Op 1 Year	93.06	16	7.47	1.87	
Pair 4	Pre Op	33.30	23	15.82	3.30	0.0004 extremely statistically significant
	Post Op 2 Year	89.29	7	11.64	4.40	
Pair 5	Post Op 2 Month	85.70	23	9.05	1.89	0.0452 statistically significant
	Post Op 6 Month	91.38	21	7.41	1.62	
Pair 6	Post Op 2 Month	85.70	23	9.05	1.89	0.0342 statistically significant
	Post Op 1 Year	93.06	16	7.47	1.87	
Pair 7	Post Op 2 Month	85.70	23	9.05	1.89	0.3842 not statistically significant
	Post Op 2 Year	89.29	7	11.64	4.40	
Pair 8	Post Op 6 Month	91.38	21	7.41	1.62	0.0677 not quite statistically significant
	Post Op 1 Year	93.06	16	7.47	1.87	
Pair 9	Post Op 6 Month	91.38	21	7.41	1.62	0.3805 not statistically significant
	Post Op 2 Year	89.29	7	11.64	4.40	
Pair 10	Post Op 1 Year	93.06	16	7.47	1.87	0.5782 not statistically significant
	Post Op 2 Year	89.29	7	11.64	4.40	

Comparison of harris hip score for cemented total hip arthroplasty between different follow ups

When comparison was done between pre op Harris hip scores and post op scores, difference was extremely significant with a P value of 0.0001 for all the pairs. Mean Harris hip scores for pre op, post op 2months, 6 months, 1 year and 2 years were 28.56, 80.56, 85.30, 86.88 and 89.40 respectively. [Table 3]

Difference between post op 2 month scores and post op 6 month scores was not statistically significant (P value 0.1017) but difference between post op 2 month scores and post op 1 year scores was statistically significant (P value 0.0430). Difference between post op 2 month scores and post op 2 year scores was not statistically significant (P value 0.1170).

Difference between post op 6 month scores and post op 1 year scores was not statistically significant (P value 0.2570). Difference between post op 6 month scores and post op 2 years scores was statistically significant (P value 0.0297) and also the difference between post op 1 year scores and post op 2 years scores was statistically significant (P value 0.0450).

Comparison of harris hip score for uncemented total hip arthroplasty between different follow ups

When comparison was done between pre op Harris hip scores and post op scores, difference was extremely significant with a P value of 0.0004 for pre op and post op 4 year pair and P value of 0.0001 for all other pairs. Mean Harris hip scores for pre op, post op 2month, 6 month, 1 year and 2 year were 33.30, 85.70, 91.38, 93.06 and 89.29 respectively.

Difference between post op 2 month scores and post op 6 month scores was statistically significant (P value 0.0452) and difference between post op 2 month scores and post op 1 year scores was also statistically significant (P value 0.0342). Difference between post op 2 month scores and post op 2 year scores was not statistically significant (P value 0.3842). [Table 4]

Difference between post op 6 month scores and post op 1 year scores was not quite statistically significant (P value 0.0677). Difference between post op 6 month scores and post op 2 years scores was not statistically significant (P value 0.3805) and also the difference between post op 1 year scores and post op 2 years scores was not statistically significant (P value 0.5782).

Comparison of physical component summary scores of sf-36 for cemented total hip arthroplasty between different follow ups

When comparison was done between pre op physical component summary scores of sf-36 and post op scores, difference was extremely significant with a P value of 0.0001 for all the pairs. Mean physical component summary scores of sf-36 for pre op, post op 2month, 6 month, 1 year and 2 year

were 21.594, 34.662, 38.190, 40.706 and 41.410 respectively.

Difference between post op 2 month scores and post op 6 month scores was statistically significant (P value 0.0128) and difference between post op 2 month scores and post op 1 year scores was also very statistically significant (P value 0.0064). Difference between post op 2 month scores and post op 2 year scores was statistically significant (P value 0.0306).

Difference between post op 6 month scores and post op 1 year scores was statistically significant (P value 0.0101). Difference between post op 6 month scores and post op 2 years scores was not statistically significant (P value 0.2204) and also the difference between post op 1 year scores and post op 2 years scores was not statistically significant (P value 0.9034).

Comparison of physical component summary scores of sf-36 for uncemented total hip arthroplasty between different follow ups

When comparison was done between pre op physical component summary scores of sf-36 and post op scores, difference was extremely significant with a P value of 0.0001 for all the pairs. Mean physical component summary scores of sf-36 for pre op, post op 2month, 6 month, 1 year and 2 year were 22.052, 38.935, 42.410, 45.206 and 43.557 respectively.

Difference between post op 2 month scores and post op 6 month scores was not quite statistically significant (P value 0.0524) but difference between post op 2 month scores and post op 1 year scores was very statistically significant (P value 0.0051). Difference between post op 2 month scores and post op 2 year scores was not statistically significant (P value 0.2804).

Difference between post op 6 month scores and post op 1 year scores was extremely statistically significant (P value 0.0007). Difference between post op 6 month scores and post op 2 years scores was not quite statistically significant (P value 0.0550) and also the difference between post op 1 year scores and post op 2 years scores was not statistically significant (P value 0.9742).

DISCUSSION

This study was a retrospective and prospective study and comprised of 44 patients in which 10 were female and 34 were male patients. The mean age of the patients taken up for our study was 45.14 years with the youngest patient being 19 years old and the oldest being 70 years old. This study aims at evaluating the functional outcome of cemented and uncemented total hip arthroplasty and comparing the functional outcome using Harris Hip Score and Physical Component Summary Score of SF-36. In our study randomization of patients in terms of technique used was not possible because

selection of prosthesis was dependent on many factors including age, indication for the hip replacement, condition of the femoral canal and cost of the implant.

In the study done by Laupacis A et al., 20027, mean age of the patients was 64 years and 48% were female and both groups were similar to each other at the time of randomization. In the study of D'Lima DD et al.,^[8] 1998, mean age patients in uncemented group was 52 years and mean age of patients in cemented group was 71 years. In our study also patients in uncemented group were younger than cemented group with mean age of 39.46 years in uncemented group and mean age of 51.60 in cemented groups, but these values were lower than corresponding values in study by D'Lima DD et al., 19988. In our study 75% patients were male, only 25 % were female.

In a study by Saam Morshed et al.,^[9] 2007 cemented and uncemented fixation was compared in terms of failure which was defined as revision of either femoral or acetabular component and they found that there was no difference. In our study no instance of revision occurred. Study by Kim YH et al.,^[10] 2003 observed total hip arthroplasty with and without cement in patients with osteonecrosis of the femoral head. They found that in both the techniques main problem were linear wear of the polyethylene liner and a high rate of osteolysis. Advancements in surgical technique and better designs have greatly improved the long-term survival of cemented and cementless implants in young patients with osteonecrosis of the femoral head.

Results from Zimmerman S et al.,^[11] 2002 indicated that, while the totally non-cemented prosthesis was more costly, there were no statistically significant differences in clinical or functional outcomes between the non-cemented and the hybrid prostheses up to 12 months post-surgery. In our study at 2 months, mean Harris hip score in the uncemented group (85.70) was better than cemented group (80.56) but the difference was not quite statistically significant (P value 0.0642)., At 6 months mean Harris hip score in the uncemented group (91.38) was better than cemented group (85.30) and the difference was very statistically significant (P value 0.0083). At 1 year mean Harris hip score in the uncemented group (93.06) was better than cemented group (86.88) and the difference was statistically significant (P value 0.0275). At 2 year mean Harris hip score in the uncemented group (89.29) was almost equal to cemented group (89.40) and the difference was not statistically significant (P value 0.9871) because sample size was small.

Laupacis A et al.,^[7] 2002 found that rate of revision of femoral component was higher in the cemented group than with the cementless prostheses. Results in our study were better in the uncemented group

but no revision was required in any group till date. D'Lima DD et al.,^[8] 1998 compared two series of 100 consecutive primary total hip arthroplasties, each using a single design of uncemented or cemented femoral component (all 28 mm heads). One cemented and two uncemented stems underwent revision for aseptic loosening. Of unrevised hips, outcome data statistically favored cemented, rather than uncemented, stems. In our study results were better in uncemented group both in terms of Harris Hip Score and Physical Component Summary Score of SF-36 and the Head size used in cemented group was 28 mm while in uncemented group 28mm head was used in 30% and 36 mm head was used in 70% hips.

We scored Physical Component Summary Score of SF-36 at 2 month, 1 year and 2 year period and found that results were better with uncemented technique at 2 month (P value, 0.0119), 6 month (P value, 0.0103) and 1 year (P value, 0.0165) follow up. On the other hand in a study by Rorabeck CH et al.,^[12] 1996 all parameters assessed showed that there was no statistically significant difference in any of the health related quality of life measures used when patients with cement were compared with patients without cement at any of the follow up periods as many as 4 years later.

Complications occurred in 2 patients in which uncemented components were used. In one female patient suffering from AVN right hip pre op shortening was approximately 6 cm. In the immediate post op period there was sciatic nerve palsy for which sciatic nerve exploration was done. Full recovery took place at 6 month follow up. In another male patient with uncemented total hip arthroplasty, pain, swelling and redness of upper lateral thigh developed at 1 month post op, for which patient was admitted and debridement was done. Pus from the swelling was sterile on culture. A course of broad spectrum antibiotics for 2 months rendered the patient asymptomatic.

CONCLUSION

Functional outcome evaluation in our study suggested that uncemented total hip arthroplasty is better than cemented total hip arthroplasty when compared using Harris Hip Score and Physical Component Summary Score of SF-36. This study showed that functional results of uncemented total hip arthroplasty are better than cemented arthroplasty because large head used in the uncemented arthroplasty provides better range of motion which satisfies the need of Indian patients to squat and sit cross-legged.

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