Results

RESULTS

In this study, evaluation of the late results of 34 hips (30 cases) was done and each case was assessed both clinically and radiologically and a comparison was done between the results of cemented total hip replacement and cementless total hip replacement.

The evaluation of the results of the study includes :

1- The overall results.

2- Analysis of the results as regarding :

A-Patient's profile :

- Age.
- Sex.
- Occupation.
- Body weight.
- Pathology of the affected hip.
- Follow up period.
- System used.

B-Clinical assessment.

C-Radiological assessment.

D-Total Score.

3- Complications.

1- Overall results :

Table (1) : Comparison between cemented and cementless total hip replacement regarding the overall results.

Type of THR / Overall results	Cemented N = 18		Cementless n = 16		Total n = 34	
	No	%	No	%	No	%
Excellent	6	33.33	4	25.0	10	29.5
Good	6	33.33	11	68.75	17	50.0
Fair	4	22.23	1	6.25	5	14.7
Poor	2	11.11	-	-	2	5.8
Total	18	100.0	16	100.0	34	100.0

This descriptive table shows that for patients having cemented THR, the overall results were excellent in 6 hips (33.33%) good in 6 hips (33.33%), fair in 4 hips (22.23%) and poor in 2 hips (11.11%), (one of these two hips had a revision during my study). For cementless THR, the results were excellent in 4 hips (25%) good in 11 hips (68.75%) and fair in only 1 hip (6.25%).

2- Analysis of the results :

A-Patient's Profile :

- **Age :**

Table (2) : Comparison between cemented and cementless total hip replacements among the studied group regarding age.

Type of T.H.R. / Age	Cemented (n = 18)	Cementless (n = 16)
• Range in years	34.0 – 70.0	35.0 – 60.0
• $\bar{X}$	50.12	45.78
• ± S.D.	± 9.78	± 8.62
t	1.280	
P	> 0.05	(N.S)

This table shows that the age of the patients having cemented T.H.R. ranges from 34 to 70 years with a $\bar{X}$ 50.12 year and a S.D ± 9.78. On the other hand, the age of the patients having cementless T.H.R. ranges from 35 to 60 years with a $\bar{X}$ 45.78 year and a S.D ± 8.62. The t was 1.28 and there was no statistically significant difference between both cemented and cementless T.H.R. regarding age.

• **Sex :**

Table (3) : Sex distribution of the studied patient according to the type of total hip replacement.

Type of T.H.R. / Sex.	Cemented		Cementless		Total	
	No	%	No	%	No	%
Females	6	37.5	4	28.6	10	33.3
Males	10	62.5	10	71.4	20	66.7
Total	16	100.0	14	100.0	30	100.0

$X^2 = 0.268$

$P > 0.05$ (N.S).

In this table 16 patients got cemented total hip replacement 6 of them (37.5%) were females and 10 (62.5%) were males. On the other hand, 14 patients got cementless total hip replacement, 4 of them (28.6%) were females and 10 (71.4%) were males. The X^2 was 0.268 and there was no statistically significant difference between cemented and cementless T.H.R. regarding sex.

• Occupation :

Table (4) : Comparison between cemented and cementless total hip replacement regarding Occupation

Type of THR / Occupation	Cemented n = 18		Cementless n = 16		Total n = 34	
	No	%	No	%	No	%
Non occupied	4	25.0	2	14.4	6	20.0
Unskilled worker	-	00.00	-	00.00	-	00.00
Skilled worker	2	12.5	-	00.00	2	6.6
Clerk	6	37.5	6	42.8	12	40.0
Professional administered	4	25.0	6	42.8	10	33.4
Total	16	100.0	14	100.0	30	100.0

This table shows the different occupations of the studied group of patients, when correlated with the final results it was found that the poor and fair results were mainly among the professionals and the skilled workers, and the good and excellent results were mainly among clerks and unoccupied patients which were performing mild activity.

• Body Weight :

Table (5) : Comparison between cemented and cementless total hip replacement regarding the body weight

Type of THR. / Weight	Cemented (n = 18)	Cementless (n = 16)
• Range in Kg.	70 – 100	75 – 100
• $\bar{X}$	80.6	82.9
• ± S.D.	±8.6	± 7.3
t	0.946	
P	> 0.05	(N.S)

This table shows the range of body weight for both cemented and cementless THRs, and there was no statistically significant difference between both groups. The fair and poor results for both cemented and cementless THRs were mainly among the patients weighting 90 to 100kg.

• Pathology of the affected hip :

Table (6) : Pathology of the affected hip in both cemented and cementless THRs.

Type of T.H.R. / Diagnosis	Cemented		Cementless		Total	
	No	%	No	%	No	%
Rheumatoid artheritis	1	5.55	0	0.0	1	2.94
1ry osteoartheritis	13	72.23	15	93.75	28	82.36
2nd osteoartheritis	3	16.67	1	6.25	4	11.76
Fracture of the neck of the femur	1	5.55	0	0.0	1	2.94
Total	18	100.0	16	100.0	34	100.0

This table shows that of the 18 diseased hips having cemented T.H.R. only one hip (5.55%) was affected by rheumatoid artheritis. 13 hips (72.23%) were affected by 1ry O.A, 3 hips (16.67%) by 2nd O.A and only 1 hip (5.55%) by a fracture of the femoral neck. On the other hand of the 16 diseased hips having cementless T.H.R., 15 hips (93.75%) were affected by 1ry O.A., only 1 case (6.25%) by 2nd O.A and no cases were affected by rheumatoid arthritis or fracture of the femoral neck.

• Follow up period :

Table (7) : Comparison between cemented and cementless total hip replacement regarding the period of follow up (in years).

Type of T.H.R. / Follow Up Period	Cemented (n = 18)	Cementless (n = 16)
• Range in years.	5 – 13	2.5 – 4
• $\bar{X}$	9.277	3.312
• ± S.D.	2.346	0.543
t	9.918	
P	< 0.01	(Significant)

This table shows that the follow up period of the 18 cemented THR ranges from 5 to 13 years with a $\bar{X}$ 9.277 year and a S.D ± 2.346 year and the follow up period of the 16 cementless T.H.R ranges from 2.5 to 4 years with a $\bar{X}$ 3.312 year and a S.D ± 0.543 year. The t was 9.918 and there was a statistically significant difference between both cemented and cementless THR regarding the period of follow up.

- **System used :**

Table (8) : Different systems used for hip replacement.

System used / Final result	Charnley n = 8		Muller n = 10		Porous Coated n = 9		Non Porous Coated n = 7		Total n = 34	
	No	%	No	%	No	%	No	%	No	%
Excellent	1	12.5	5	50.0	2	22.3	2	28.5	10	29.5
Good	3	37.5	3	30.0	6	66.6	5	71.5	17	50.0
Fair	2	25.0	2	20.0	1	11.1	-	00.00	5	14.7
Poor	2	25.0	-	00.0	-	00.0	-	00.00	2	5.8
Total	8	100.0	10	100.0	9	100.0	7	100.0	34	100.0

From this table, one can see that the results of the cemented THRs using the Charnley hip system were inferior to those replaced by the Muller system but for cementless cases there was no much difference between the results of porous coated and non porous coated cementless THRs.

B-Clinical evaluation :

• Pain :

Table (9) : Comparison between cemented and cementless total hip replacement regarding pain.

Type of T.H.R. / Pain	Cemented (n = 18)	Cementless (n = 16)
• Range	2.0 – 10.0	6.0 – 8.0
• $\bar{X}$	7.11	6.75
• ± S.D.	1.967	1.000
t	0.6615	
P	P > 0.05	(N.S)

In this table, a comparison was done between both cemented and cementless THR regarding pain. The severity of pain for cemented T.H.R (as mentioned by the scoring system) ranges from 2 to 10 with a $\bar{X}$ 7.11 and a S.D ± 1.967. On the other hand the severity of pain for cementless THR ranges from 6 to 8 with a $\bar{X}$ 6.75 and a S.D ± 1.00.

The t was 0.6615 and there was no statistically significant difference between both groups regarding pain intensity.

The onset of pain was much earlier in patients having cementless THR than for patients having cemented THR.

• Walking :

Table (10) : Comparison between cemented and cementless total hip replacement regarding walking.

Type of T.H.R. / Walking	Cemented (n = 18)	Cementless (n = 16)
• Range	4.0 – 10.0	6.0 – 10.0
• $\bar{X}$	7.88	7.50
• ± S.D.	1.99	1.15
t	0.68	
P	> 0.05	(N.S)

In this table, a comparison between the two studied groups was done regarding the walking activity (as mentioned in the scoring system).

For the cemented THR it ranges from 4 to 10 with a $\bar{X}$ 7.88 and a S.D ± 1.99 and for the cementless THR it ranges from 6 to 10 with a $\bar{X}$ 7.50 and a S.D ± 1.15. The t was 0.68 and there was no statistically significant difference between both groups.

• Function :

Table (11) : Comparison between cemented and cementless total hip replacement regarding function.

Type of T.H.R. / Function	Cemented (n = 18)	Cementless (n = 16)
• Range	4.0 – 10.0	6.0 – 8.0
• $\bar{X}$	7.33	7.25
• ± S.D.	1.81	1.00
t	0.16	
P	> 0.05	(N.S)

As shown in this table, a comparison between both groups was done as regarding the functional activities (as mentioned in the scoring system). The range for cemented THR was 4 to 10 with a $\bar{X}$ 7.33 and a S.D ± 1.81, and for cementless THR was 6 to 8 with a $\bar{X}$ 7.25 and a S.D ± 1.0. The t was 0.16 and there was no statistically significant difference in between both groups.

• Motion – Ms. Power :

Table (12) : Comparison between cemented and cementless total hip replacement regarding motion – muscle power.

Type of T.H.R. / Motion / Ms. Power	Cemented (n = 18)	Cementless (n = 16)
• Range	4.0 – 10.0	8.0 – 10.0
• $\bar{X}$	7.44	8.62
• ± S.D.	± 2.07	± 0.96
t	1.682	
P	> 0.05	(N.S)

All the THRs were examined clinically for their motion and muscle power and a comparison was carried out between both cemented and cementless THRs as shown in this table, for cemented T.H.R the motion and muscle power ranges from 4 to 10 with a $\bar{X}$ 7.44 and a S.D ± 2.07. For cementless T.H.R, the motion and muscle power ranges from 8 to 10 with a $\bar{X}$ 8.62 and a S.D ± 0.96. The t was 1.682 and there was no statistically significant difference between both groups.

C-Radiological evaluation :

• Acetabular radiograph :

Table (13) : Comparison between cemented and cementless total hip replacement regarding acetabular radiograph.

Type of T.H.R. / Acet. Radiograph	Cemented (n = 18)	Cementless (n = 16)
• Range	2.0 – 10.0	8.0 – 10.0
• $\bar{X}$	7.22	8.62
• ± S.D.	2.07	0.95
t	2.47	
P	< 0.05	(Significant)

The X rays of all cases were evaluated and a comparison was done between both cemented and cementless THR regarding acetabular radiographs. The range for cemented THR was 2 to 10 with a $\bar{X}$ 7.22 and a S.D ± 2.07 and for cementless THR was 8 to 10 with a $\bar{X}$ 8.62 and a S.D ± 0.95. The t was 2.47 and there was a statistically significant difference in between both cemented and cementless THR with the upper hand to cementless THR.

The description of the various acetabular radiological changes has been previously mentioned in the assessment system.

*Femoral radiograph :

Table (14) : Comparison between cemented and cementless total hip replacement regarding femoral radiograph.

Type of T.H.R. / Fem. radiograph.	Cemented (n = 18)	Cementless (n = 16)
• Range	2.0 – 10.0	4.0 – 10.0
• $\bar{X}$	8.55	7.25
• ± S.D.	2.25	1.43
t	1.98	
P	> 0.05	(N.S.)

This table shows a comparison between both cemented and cementless THR regarding femoral radiograph which ranges for cemented THR from 2 to 10 with a $\bar{X}$ 8.55 and a S.D ± 2.25 and for cementless THR from 4 to 10 with a $\bar{X}$ 7.25 and a S.D ± 1.43. The t was 1.98 and there was no statistically significant difference in between both groups regarding this item.

The description of the various femoral radiological changes has been previously mentioned in the assessment system.

D-Total Score :

Table (15) : Comparison between cemented and cementless total hip replacement regarding the total score of the scoring system.

Type of T.H.R. / Total Score	Cemented (n = 18)	Cementless (n = 16)
• Range	18.0 – 60.0	40.0 – 52.0
• $\bar{X}$	45.44	44.81
• ± S.D.	± 10.85	± 4.25
t	0.218	
P	> 0.05	(N.S)

This table demonstrate a final comparison between both groups regarding the total score. For cemented THR it ranges from 18 to 60 with a $\bar{X}$ 45.44 and a S.D ± 10.85 and for cementless cases, it ranges from 40.0 to 52.0 with a $\bar{X}$ 44.81 and a S.D ± 4.25. The t was 0.218 and there was no statistically significant difference in between both cemented and cementless THR regarding the total score.

3- Complications :

Table (16) : Comparison between cemented and cementless total hip replacement regarding complications.

Type of THR / Occupation	Cemented n = 18		Cementless n = 14		Total n = 34		Z	P
	No	%	No	%	No	%		
1- Post operative dislocation.	1	5.55	2	12.50	3	8.82	0.0713	>0.05 (N.S)
2-Fracture of the femur (intra-operative)	-	-	2	12.50	2	5.88	1.546	>0.05 (N.S)
3- Post. Operative infection	2	11.11	1	6.25	3	8.82	0.499	>0.05 (N.S)
4-Limb Length discrepancy (shortening)	2	11.11	1	6.25	3	8.82	0.499	>0.05 (N.S)
5-Loosening	8	44.44	6	37.50	18	52.94	0.0411	>0.05 (N.S)
6- Osteolysis	5	27.77	4	25.00	12	35.29	0.0183	>0.05 (N.S)

There was no great difference between both studied groups regarding all these complications.