INVESTIGATING THE SHORT-TERM EFFECTS OF TOTAL HIP ARTHROPLASTY (THA) ON PAIN AND THE HIP FUNCTION OF THE PATIENTS WITH HIP OSTEOARTHRITIS

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ABSTRACT
Background: Osteoarthritis is a common illness in elderly people and hip joint is one of the most common sites of osteoarthritis. Total hip arthroplasty (THA) is an accepted treatment in these patients, nowadays. The aim of this study was short-time evaluation of THA in patients with hip osteoarthritis.

Methods: This clinical trial evaluated 40 patients with hip osteoarthritis undergone total hip arthroplasty in Imam Hosein Hospital. Pain intensity was measured by the visual analogue scale (VAS) and function was assessed by Harris hip scale (HHS) before operation and 6 and 12 months after it. Findings: The mean score of VAS was 6.71 before operation, and 4.62 and 3.38 at 6 and 12 month after it, respectively; the difference was significant (P < 0.0001). The mean of HHS was 47.3, 79.8, 91.2 before operation and 6 and 12 month after it, respectively with a significant difference (P = 0.0011). Conclusion: Our findings showed that total hip arthroplasty, in short-time, decrease pain reduction and improve hip function in patients with hip osteoarthritis.

Keywords: Total Hip Arthroplasty, Osteoarthritis, Pain, Function

INTRODUCTION
Osteoarthritis is the most common disease of moving and axial joints of the body (Huo et al., 2007). Hip and knee joints are affected more than other joints, and osteoarthritis is more common in older ages (Huo et al., 2007; McAuley et al., 2004). Etiology of osteoarthritis is not known accurately, but factors such as infection, trauma, congenital hip dysplasia, complications of femoral head avascular necrosis, metabolic disorders, congenital abnormalities and genetic factors lead to the spread of this phenomenon (McAuley et al., 2004). Total Hip Arthroplasty (THA) has attracted many researchers and practitioners in recent years and the need to do this operation increases more and more every day (Kim et al., 2011). Hip replacement surgery is widely practiced throughout the world. It is estimated that approximately 170,000 people in the United States and 300,000 people around the world are undergoing this surgery (Zhan et al., 2014).

Total Hip Arthroplasty is performed for different reasons the most common cause of which is severe osteoarthritis; this effect includes 70% of the causes. Other causes include trauma, Paget's disease, osteonecrosis of the femoral head, lupus, spondylitis Ankylosing and rheumatoid arthritis (Kim et al., 2011; Zhan et al., 2014).

In fact, Total Hip Arthroplasty is the final treatment of advanced osteoarthritis of the hip joint, it is also as one of the selected treatments for femoral neck fractures in elderly patients who are functionally active and are considered to have good bone quality (Siopack and Jergesen, 1995).

Selecting the correct treatment method is important in old ages; because in this case the patient will have greater efficiency and fewer complications and the need for re-operation reduces due to older ages is associated with numerous risks.

Mariconda et al., (2011) studied 250 patients who underwent Total Hip Arthroplasty, for 16 years. In the end, it was observed that the quality of life and their hip function has dramatically been improved (Mariconda et al., 2011).
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Giannini et al., (2011) started to investigate the life situations of 29 patients with osteoarthritis for 16 years after Total Hip Arthroplasty, in a clinical trial. They concluded that the effectiveness of the lower extremities and hip joint of these patients have been significantly improved after surgery (Giannini et al., 2011).

Several studies have been conducted in the world in Total Hip Arthroplasty as compared with other methods, indications for the use of this type of surgery and with other medical procedures and also investigating the status and quality function of the patients after the Total Hip Arthroplasty. But reviewing the literature in our country indicates that no studies have been done in this area so far. Therefore, the present study was conducted to evaluate the short-term impact of Total Hip Arthroplasty on the pain intensity and the function of the joint in patients with osteoarthritis.

MATERIALS AND METHODS

Methods
In a clinical trial in two years (2011 to 2013) 40 patients aged 55 to 65 years with primary osteoarthritis of hip who have referred Imam Hossein Hospital of Tehran city in order to have Total Hip Arthroplasty, were studied.

All 55 to 65-year-old patients with primary osteoarthritis of the hip joint were included in the study. Patients who were studied due to rheumatoid arthritis or fracture of the femoral neck or other destructive disease of the hip joint underwent hip replacement surgery or had surgical complications (including infection) were excluded from the study.

All patients were studied before the surgery and regarding the pain intensity and hip function. Then, all of them underwent Total Hip Arthroplasty by an orthopedist surgeon. Then after 6 and 12 month after the surgery, they were again studied regarding hip pain and hip function.

To determine the pain intensity, Visual Analogue Scale (VAS) was used, in which the patient is in scoring his pain intensity in a scale of 1-10.

To evaluate the function of hip joint, Harris Hip Score (HHS), including factors such as pain, limping, walking and getting up from a chair and sitting, range of motion and limb length discrepancy was used. Scoring of this criterion is from 0-100 (Harkess, 2007).

At the end, the collected data was analyzed using the statistical software SPSS20. To compare the mean of VAS and HHS the t-Independent test was used and P-Value <0.05 was considered significant.

RESULTS AND DISCUSSION

Results
27 (67.5%) of the surveyed patients were male and 13 (32.5%) were female.

The average age of the patients was 61.5 ± 3.4.

The mean VAS before the surgery was 6.71 ± 1.5 and its average after six and twelve months after the surgery was reported to be respectively, 4.62 ± 1.4 and 3.38 ± 0.7. The difference these three means were statistically significant (P <0.0001). Reviewing the HHS mean in the studied patients, the preoperative mean was 47.3 ± 7.2, and six months after the surgery it was 79.8 ± 5.6 and twelve months after the surgery it was 91.2 ± 9.4, and the difference between them was statistically significant (P = 0.0011).

Discussion

Our study findings indicate that most of the surveyed patients (67.5%) were male. This result was similar to the previous studies (Wiklund and Romanus, 1991; Mancuso and Salvati, 2003; Blomfeldt et al., 2005; Madadi et al., 2011). The mean age of the present patients in this study was 61.5. This age category is within the epidemiology of osteoarthritis (Bhandari et al., 2003; Lievense et al., 2004).

The comparison of mean pain intensity on the basis of VAS indicated a significant reduction in pain intensity in a year after the surgery. In VAS, the pain scale is from one to ten and during a year the pain intensity decreased from 6.71 to 3.38 in this study.

Rogmark et al., (2003) in their study on patients with femoral neck fracture observed that the pain intensity significantly decreased in these patients one year after (Rogmark et al., 2003).
Pietrzak et al. (2010) also reported that pain intensity in patients with advanced osteoarthritis of the hip joint significantly decreases after the Total Hip Arthroplasty (Pietrzak et al., 2010). The average of Harris scale in patients, which represents their hip function, significantly increased over a year after the Total Hip Arthroplasty surgery. Harris scale is from zero to one hundred and in this study, the performance of the joint during a year after the operation, increased from 47.3 to 91.2. Heiberg et al., (2013) classified Harris scoring criteria based on the obtained score into the 4 groups of Great (90-100), good (80-89), medium (70-79) and low (<70%), in their study (Heiberg et al., 2013). Based on this classification, the results of our study indicate that the average standard of Harris scale was poor (47.3%) in patients before the surgery, was good (79.8) six months after the surgery, and a year later it was excellent (91.2). In other words we can say that the function of the hip joint a year after Total Hip Arthroplasty was great in patients. Edmunds and Boscainos (2014) and Sander et al., (2013) each have separately reported the increase in Harris scale and the improved performance of Total Hip Arthroplasty surgery (Sander et al., 2013).

Conclusion
Based on the obtained results of this study, it can be said that Total Hip Arthroplasty in the short term, has an effective impact on reducing pain intensity and improving the hip function in patients with osteoarthritis of the hip joint. This method of surgery can be applied as an effective way to improve the life quality of the patients.

REFERENCES

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