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STUDY OF OUTCOME OF HIGH TIBIAL OSTEOTOMY (HTO) ON OSTEOARTHRITIS OF THE KNEE JOINT AT TERTIARY CARE HOSPITAL

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Abstract

Introduction: High tibial osteotomy (HTO) has been used for more than 60 years in clinical practice and mainly involves two major techniques: Closed Wedge High tibial osteotomy (CWHTO)and Open Wedge High tibial osteotomy (OWHTO)

Method: HTOs are performed on 40 patients. The average for men and women was 2: 1. The mean age was 57.0 ± 13.1 years, a BMI of 28.04 ± 3.57kg / m² and a correction angle of 11.5 ± 2.78 °. An analogue scale (VAS) was used to assess the severity of pain. The Knee Society Score (KSS) was used to assess the performance and policy of the knee joint. The deteriorating process was assessed according to Kellgren-Lawrence's X-ray section.

Results: One year after operation, significant decrease in VAS scores (from 74.28 ± 11.79 mm to 7.79 ± 6.32mm) and improvement of effective and meaningful KSS scores (from 41.66 ± 11.5mm and 53, 39 ± 11.77mm to 88.51mm) ± 10.86mm and 82.93 ± 6.65mm) were detected. We found the following HTO results: excellent (51%), good (39%) and satisfactory (10%). X-ray signs of progression of the disease were not disclosed one year after surgery. The connection of BMI with the immediate outcome of surgery is revealed. (Spearman coefficient = 00.35 to p <0.05). Incidence of inactivity after HTO was reported to be 5% in our study. Risks of non-verification include a high level of correction in HTO, smoking, and adequate correction.

Conclusion: From this study, we conclude, HTO is a procedure performed to treat knee arthrosis in younger or middle-aged patients. Proper patient selection, appropriate types of osteotomy, and accurate surgical techniques are essential to HTO success.

Keywords: knee joint, osteoarthritis of the knee, high tibial osteotomy

Introduction

Rehabilitation surgery such as high tibial osteotomy (HTO) is reserved for cases where arthritis is blocked in the central area with the goal of replacing medial disease [1, 2]. The same indicators have been the same over the years with minor adjustments from time to time. High tibial osteotomy (HTO) has been used for more than 60 years in clinical practice and mainly involves two major techniques: Closed Wedge High tibial osteotomy (CWHTO) and Open Wedge High tibial osteotomy (OWHTO)(3) Survival and clinical outcomes of the HTO are important and the data appear to suggest that the HTO has a positive effect on both long-term follow-up. (4)The purpose of the study was to evaluate the HTO efficacy of knee osteoarthritis and to investigate the influence of age, body weight index (BMI) and corrective angle on imminent functional outcome.

Methodology:

Present research work has been conducted in our department .The sample size is estimated with the help of a specialist. We included about 40 patients. Patient age, occupation, level of activity, previous history of knee surgery, and expectations were considered before deciding on surgery. ROM, degree of deformity, ligamentous instability, and leg length differences were assessed by physical examination.

HTOs are performed on 40 patients. The average for men and women was 2: 1. The mean age was 57.0 ± 13.1 years, a BMI of 28.04 ± 3.57kg / m² and a correction angle of 11.5 ± 2.78 °.

An analogue scale (VAS) was used to assess the severity of pain. The Knee Society Score (KSS) was used to assess the performance and policy of the knee joint. The deteriorating process was assessed according to Kellgren-Lawrence's X-ray section.

Results:

Table 1: Analysis of reduction in VAS scores

	Preoperatively	Postoperatively
VAS score	74.28±11.79 mm	7.79±6.32mm

Table 2: Analysis of functional and objective KSS scores

	Preoperatively	Postoperatively
functional and objective KSS score	41.66±11.5mm and 53, 39±11.77mm	88.51±10.86mm and 82.93±6.65mm

Table 3: Results of HTO

	HTO results
Excellent	51
Good	39
Satisfactory	10

Table 4: Complications analysis:

	Number of patients in percentage
Non union	5%
common peroneal nerve palsy	4%
Other complications	4%

One year after the operation, a significant reduction in VAS scores (from 74.28±11.79 mm to 7.79±6.32mm) and an improvement in functional and objective KSS scores (from 41.66±11.5mm and 53, 39±11.77mm to 88.51±10.86mm and 82.93±6.65mm) were observed. We obtained the following results of the HTO: excellent (51%), good (39%) and satisfactory (10%). The X-ray signs of progression of the disease were not revealed one year after the operation. The connection of BMI with the nearest result of the operation was revealed. (Spearman coefficient=-0.35 at $p < 0.05$).

The incidence of nonunion after HTO has been reported to be 5 % in our study. The risk factors for nonunion included large degree of correction in HTO, smoking, and insufficient fixation.

The incidence of common peroneal nerve palsy caused by nerve damage during HTO is 4%.

Figure 1: Open Wedge High Tibial Osteotomy (OWHTO)

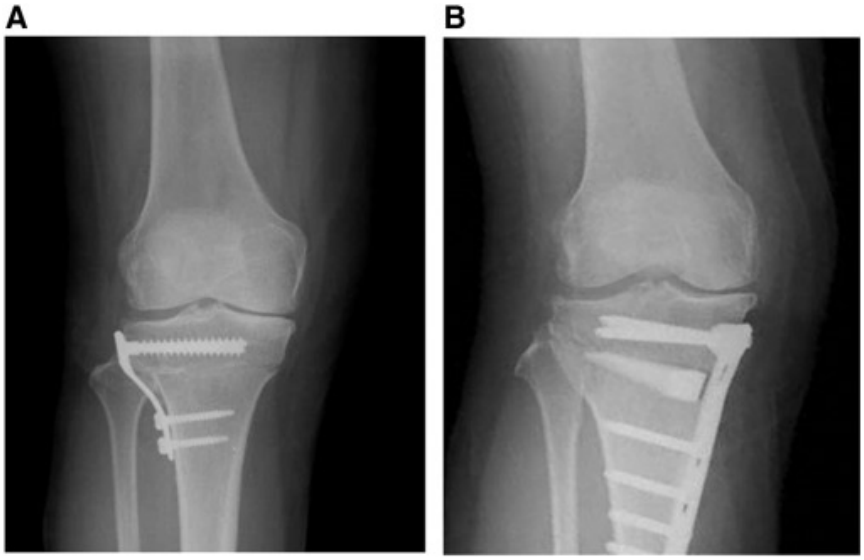

Figure 2: Close Wedge High Tibial Osteotomy (CWHTO)

Discussion:

HTOs are traditionally made for medial compartment osteoarthritis [5,6]. However, their symptoms have now been extended to ligament degeneration in the coronal and sagittal plane and the combination of medial compartment OA with ligamentous deformities. The philosophy behind you is that unless alignment is conducive to muscle regeneration and chronic ligament tear biomechanically compensates for its deficiency.

We included about 40 patients. Patient age, occupation, level of activity, previous history of knee surgery, and expectations were considered before deciding on surgery. ROM, degree of deformity, ligamentous instability, and leg length differences were assessed by physical examination.(7)

HTOs are performed on 40 patients. The average for men and women was 2: 1. The mean age was 57.0 ± 13.1 years, a BMI of 28.04 ± 3.57kg / m² and a correction angle of 11.5 ± 2.78 °. An analogue scale (VAS) was used to assess the severity of pain. The Knee Society Score (KSS) was used to assess the performance and policy of the knee joint. The deteriorating process was assessed according to Kellgren-Lawrence's X-ray section.

In our study, one year after surgery, a significant decrease in VAS scores (from 74.28 ± 11.79 mm to 7.79 ± 6.32mm) and the development of effective and meaningful KSS scores (from 41.66 ± 11.5mm and 53, 39 ± 11.77mm) to 88.51 ± 10.86mm and 82.93 ± 6.65mm) were detected. We found the following HTO results: excellent (51%), good (39%) and satisfactory (10%). X-ray signs of progression of the disease were not disclosed one year after surgery. The connection of BMI with the immediate outcome of surgery is revealed. (Spearman coefficient = 00.35 to p <0.05).

Incidence of inactivity after HTO was reported to be 5% in our study. Risks of non-verification include a high level of correction in HTO, smoking, and adequate correction.

The incidence of peroneal nerve palsy caused by nerve damage during HTO is 4%.

Another possible reason is the progression of osteoarthritis usually to the entire knee. There is, however, lacuna in the literature on postHTO movement changes and studies examining how close the final alignment is with the targeted alignment. The HTO has good results in the short and medium term and is a useful mechanism for specific indicators. (8) Concomitant procedures improve outcomes on HTO and that is why arthroscopy pre osteotomy is helpful. The use of navigation provides better alignment and requires less planning before operation. Navigating with certain patient equipment improves accuracy and planning but adds to the cost of the procedure. (9,10) Complete correction is controversial but corrective correction at several levels of valgus lowers the affected area and provides better reported patient outcomes.(11)

Conclusion

From this study , we conclude that HTO is a procedure performed to treat knee arthrosis in younger or middle-aged patients. Proper patient selection, appropriate type of osteotomy and accurate surgical techniques are essential to HTO success. The disadvantage of the procedure is limited movement during bone union and the possibility of union delay or inaction.

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