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Klinik Çalışma

Outcome of traumatic hip dislocation

Travmatik kalça çıkığı sonuçlarımız

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BACKGROUND

This retrospective study was carried out to identify prognostic factors that can predict a better long-term outcome.

METHODS

Between 1 January 1993 and 31 December 2004, 97 patients were treated at King Fahd University Hospital, AlKhobar. Fifty-eight patients were analyzed. Hips were evaluated on functional basis as per the classification of Merle d'Aubigne.

RESULTS

There were 52 males and 6 females, with a mean age of 29.6±9.8 (18-57) years and follow-up of 59.5±18.8 (24-120) months. In 43 patients, the dislocations were due to road traffic accidents. In 57 patients, closed reduction was done, while one patient required open reduction. Traction was applied for 4.71±1.07 weeks on average. Forty-three patients had excellent results. Patients with only a three-week immobilization period fared badly.

CONCLUSION

Our study indicates that good results in traumatic hip dislocation can be achieved with early reduction of dislocation and immobilization for at least four weeks.

Key Words: Hip; traumatic dislocation.

AMAÇ

Bu retrospektif çalışma, daha iyi uzun süreli sonucu öngörebilecek prognostik faktörleri belirlemek amacıyla yürütüldü.

GEREÇ VE YÖNTEM

1 Ocak 1993 ile 31 Aralık 2004 tarihleri arasında, 97 hasta AlKhoba'daki Kral Fahd Üniversitesi Hastanesi'nde tedavi edildi. Bunların elli sekizi değerlendirildi. Kalçalar, Merle d'Aubigne sınıflamasına ve fonksiyonel temele göre değerlendirildi.

BULGULAR

Ortalama yaşları 29,6±9,8 (18-57) yıl olan ve 59,5±18,8 (24-120) ay süreyle takip edilen 52 erkek ve 6 kadın hasta değerlendirildi. Çıkıklar hastaların 43'ünde karayolunda gerçekleşen trafik kazasına bağlıydı; 57 hastada kapalı redüksiyon, bir hastada açık redüksiyon uygulandı. Traksiyon ortalama 4,71±1,07 hafta süreyle uygulandı. Hastaların 43'ünde mükemmel sonuçlar elde edildi. Yalnızca üç haftalık bir immobilizasyon uygulanan hastalar olumsuz seyretti.

SONUÇ

Bizim çalışmamız travmatik kalça çıkıklarında, çıkıkların erken redüksiyon ve en az dört haftalık immobilizasyonla birlikte iyi sonuçlar elde edilebileceğini göstermektedir.

Anahtar Sözcükler: Kalça; travmatik çıkık.

Traumatic hip dislocation is a serious injury that results from high energy trauma and it can lead to long-term morbidity. In both developed and developing countries, motor vehicular accidents remain the main cause of traumatic hip dislocation.[1-4] Associated injuries are common and further influence the final outcome.[5] A hip dislocation or fracture dislocation is an orthopedic emergency, and it was advocated that an early reduction will reduce complications, but only 40-80% of patients have good or excellent results.[1,6,7] Early reduction is mandatory, but controversy remains regarding the duration of immobilization and weight-bearing thereafter. Complications like avascular necrosis (AVN) of the femoral head and late osteoarthritis of the hip have been reported.[8-10] Fast roads and high-speed cars in the Saudi so-

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ciety make an ideal combination for road traffic accidents and serious hip injuries.

This retrospective study was carried out to assess the prevalence of posterior hip dislocations in the Saudi society and the factors influencing the long-term outcome, such as time from accident to reduction of the hip, associated injuries and duration of immobilization.

MATERIALS AND METHODS

This retrospective study included patients seen with traumatic dislocation of the hip at King Fahd University Hospital, AlKhobar, between 1 January 1993 and 31 December 2004. Ninety-seven patients were treated, and 58 were analyzed.

Inclusion criteria in the analysis were: patients over the age of 18 years, posterior dislocation and treatment by traction alone, and a minimum follow-up of at least 24 months. Patients and their medical charts were reviewed. The data of age, sex, type of accident, side of dislocation, and associated injuries were analyzed.

Dislocations were classified as Thompson-Epstein (posterior).[11] Hips were evaluated on a functional basis as per the classification of Merle d'Aubigne[12] and on radiological features. All patients had reduction of the hip joint within 12 hours of hospital admission. The most recent radiographs of the patients were reviewed by the radiologist for changes of osteoarthritis and AVN of the femoral head.

Table 1. Associated injuries in 36 patients

Head injury	3
Chest trauma	6
Abdominal injury	4
Brachial plexus	2
Arterial injury	1
Fractures	22
Femur	3
Tibia	2
Patella	6
Cervical spine	1
Lumbar spine	2
Shoulder dislocation	1
Clavicle	3
Ankle	4

Table 2. Complications according to duration of treatment

Duration of Treatment	Number of Patients	Age	Complications
3 weeks	14	21.4±3.6	8
4 weeks	22	28.7±9	4
5 weeks	10	24.2±5.2	2
6 weeks	12	33.2±7.4	1

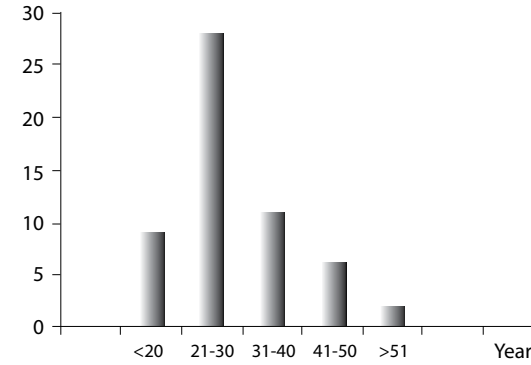

Fig. 1. Age distribution of patients.

The data was entered in the database and analyzed using SPSS (Statistical Package for the Social Sciences; Chicago, IL). Means were compared using Student's t test and chi-square as needed. A p value of <0.05 was accepted as indicating statistical significance, and a confidence interval of 95% was used. The study was approved by the Research Committee of the College of Medicine, King Faisal University, Dammam.

RESULTS

There were 52 males and 6 females, with a mean age of 29.6±9.8 (18-57) years (Fig. 1). The mean duration of reduction was 7.36 hours (4-12) and the mean follow-up was 59.5±18.8 (24-120) months. The right side was involved in 21 patients and the left side in 37 patients. Thirty-eight patients had an associated injury and patients suffered 25 fractures (Table 1). Sixty-eight percent of all fractures were in the lower limbs. In 47 patients, the dislocations were due to road traffic accidents and 36 were drivers; three patients had sports-related injury and eight patients had dislocations due to fall from height. In 57 patients, closed reduction was needed, while one patient required open reduction due to difficulty in reduction because of obesity. The duration of traction was between three and six weeks. Patients who had minimum weeks of traction were younger but the associated injuries were similar in all the groups.

Forty-three patients were treated with skeletal traction and 15 with skin traction. Traction was applied for 4.71±1.07 weeks (3-6) on average. Eight of 14 patients (57%) who had traction for three weeks

had complications (Table 2). Patients who had traction of three weeks had significantly more complications when compared to patients with traction of four weeks or more (p=0.001). Forty-three patients had excellent results, whereas five patients showed signs of joint space narrowing and osteoarthritis, eight patients had residual painful hip, and two patients developed osteonecrosis of the femoral head.

DISCUSSION

Our study shows that traumatic hip dislocation without associated fractures of either the acetabulum or the head generally have good outcome. Patients who had three weeks of traction experienced the most complications compared to those who were immobilized for a longer period of time. The recommendations of Vecsei et al. (1997)[6] were three weeks of immobilization and early full weight-bearing even though they had complications in 18/43 patients. In our 14 patients who had three weeks of immobilization by skin traction, eight (57%) had complications. Our results indicate that in young patients, more than three weeks of immobilization are needed to reduce increased risk of complications. Our overall complication rate was 25.8%, which is better than rates reported in the literature.[5,10,13]

Complications after traumatic hip dislocation range from the most severe, AVN of the femoral head, to mild osteoarthritis. AVN of the femoral head was reported to range between 6-27%.[1,10,11,14] In our study, AVN occurred in 4%, which is lower than the reported incidence. This could be attributed to the fact that all patients in the study group were classified as Thompson-Epstein type I, and secondly, the higher incidence of AVN is linked to delay in relocation of the head and older age of the patients. In all our patients, the reduction was done in less than 12 hours. Post-traumatic arthrosis is the most common complication after hip dislocation, ranging between 17-48%.[4,5,15,16] Post-traumatic arthrosis occurred in 8.6% of our patients, and the majority of these had associated injuries.

Road traffic accidents, particularly involving four-wheel drives and two-wheelers, are the most common cause of traumatic dislocated hips. Bhandari et al. (2006)[15] recently reported the cause as road traffic accidents in 77% of their patients, and 72% were males. Dwyer et al. (2006)[17] in their series of 35 patients reported that all of the dislocations were due to road traffic accidents. In this study, 81% of all dislocations occurred due to road traffic accidents, and 90% were males. The high incidence of male patients can be explained by the fact that females in Saudi Arabia are restricted from driving.

There is disagreement in the literature regarding the trauma and the side of the hip dislocation. Dreinhöfer et al.[10] did not find any correlation between the cause of the dislocation and the side of dislocation, but Levin (1992)[18] reported that in motor cars with left-sided steering, like in the United States, the left hip was most vulnerable to dislocation compared to the right. Dwyer et al.[17] showed that in cars with right-sided steering, the right side was involved in 23/35 patients. In this study, the left side was involved in 37 of 47 patients, as in this country the cars are driven on the right side.

In conclusion, we believe that early reduction of the dislocated hips and immobilization of four weeks or more are needed for a better long-term outcome. Secondly, secondary arthrosis of the hip may be related to the severity of the overall injuries.

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