Antibiotic Prophylaxis in Knee Arthroscopy

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Abstract:

Back ground: Knee arthroscopy has become one of the most common orthopedic procedures used for both ,diagnosis and treatment , probably due to low morbidity compared to arthrotomy(1). The reported rates of infectious complications following arthroscopy of the knee were low. This low rate of infection following knee arthroscopy rise the point of not using antibiotic prophylaxis in such procedures.

Objective: Our aim is to determine the need and the effect of using prophylactic antibiotic in knee arthroscopy.

Patients & Methods: We assessed all patients presented to our knee clinic at the Royal Rehabilitation Center at King Hussein Medical Center, in Amman/Jordan between Jan.2000 and Feb.2002. Patients who refused to be enrolled in the study and those who will need complex procedures as anterior cruciate ligament reconstruction or accompanied arthrotomy were excluded from the study. A total of 180 patients were included in the study and divided into two groups with equal numbers, group one patients were given 1 gram of 1st generation cephalosporines one hour prior surgery and the other group without antibiotic prophylaxis .All surgeries were under general end tracheal anesthesia with tourniquet. Patients were followed at days 1, 3,7and 3, 6 months for signs of infection.

Results: There were no significant statistical differences between the two groups in terms of ages, pathology detected in knees, surgical procedures performed and operative time .No infection was detected in both groups during the follow up .No complication of antibiotic used was encountered.

Conclusion: There is no value of using antibiotic prophylaxis as routine in knee arthroscopy and should be reserved for complex knee arthroscopy surgeries. Antibiotic usage may increase cost and may lead to antibiotic complications.

Key words: antibiotic prophylaxis, infection, knee arthroscopy, complication.

Introduction

Knee arthroscopy has become one of the most common orthopedic procedures used for both diagnosis and treatment probably due to low morbidity compared to arthrotomy [1].

Numerous complications have been reported in literature such as infection, deep vein thrombosis, compartment syndrome, popliteal artery injury, saphenous neuropathy and hemarthrosis [2, 3, 4, 5, 6, 7, 8].

Reported rates of infectious complications following arthroscopy of the knee was 0.02-0.04% [9, 10].Sherman et al 0.1% and De Leei 0.08 % [11]. This low rate of infection following knee arthroscopy rise the point of not using antibiotic prophylaxis in such procedure Angelo and Ogilvie reported an infection rate of 0.23%in arthroscopy which was sufficient to recommend perioperative antibiotics [12].

Our study is a prospective study to determine the need and the effect of antibiotic prophylaxis in knee arthroscopy procedures.

Patients & Methods:

We assessed all patients presented to our knee clinic at the Royal Rehabilitation Center at King Hussein Medical Center in Amman between Jan.2000and Feb.2002.

Patients who refused to be enrolled in the study as well as those who will need complex procedures as anterior cruciate ligament reconstruction or accompanied arthrotomy were excluded from the study. Knee pathologies were meniscal tears, synovial pathologies, synovial plicas and loose bodies.

A total of 180 Patients were divided into two equal groups; group one with even admission numbers were given 1 gram of 1st generation cephalosporines (cephalothin) one hour prior surgery and group two with odd admission numbers with no prophylaxis .All surgeries were done under general endotracheal anesthesia with tourniquet The instruments were sterilized using 2%glutaraldehyde (cidex) for 15 minutes. Duration of surgeries was detected.

Patients were followed for systemic and local signs of infection including swelling, redness and hotness at days 1, 3, 6 and 1,3and 6 months.

Results:

In group one 75 male and 15 female, mean age was 26(22-36) ys and duration of surgery was between 30 to 60 minutes.

In group two 80 male and 10 female patients mean age was 25(24-36) years and duration of surgery was the same with group one.

So there were no significant differences between the two groups in term of ages, sexes and duration of surgeries. In addition there were no significant differences between the two groups in term of pathologies in the knees and surgical procedures which included menisectomies, synovial plica excision, and loose body removal and synovial biopsies taking in consideration the exclusion of complicated cases at the beginning of the study.

No cases of superficial or deep infections were detected during the follow up of patients. None of the patients in group one developed Side effects including allergy to the antibiotic taken.

Discussion

Knee arthroscopy is an important procedure used in orthopedics. Many complications of knee arthroscopy has been reported [2,3,4,5,6,7,8] .Infection is a rare complication reported to be 0,02-0,04.Sherman et al reported 0.1 % and De Leei reported 0.08% rate of infection. Wertheim SB et al suggested that antibiotic will not affect the rate of infection in knee arthroscopy prophylaxis and may have side effects as allergy [9, 10, 11].

Small (1986) reported 0.07 % of infection with 1st generation arthroscopies which were diagnostic, menisectomies and lateral retinacular releases [1]. But another survey done five years later showed increased rate to from 0.5to 1.6% and this increase associated with complex knee problems [13]. Angelo and Ogilvie reported a rate of 0.23% and suggested the use of antibiotics from the point of cost benefit [12].

Sterilization of the arthroscopic instruments with 2% glutaraldehyde (cidex) for 15 minutes will allow multiple surgeries to be done at low rate of infection [15]. The experience of the surgeon is important in decreasing time and complication of surgery [13]. So antibiotic prophylaxis in knee arthroscopy should not be routine and should be reserved to complex procedures as anterior cruciate ligament reconstruction and meniscal repair [13, 14].

Infection increases in those undergoing complex surgeries, immuncompromized and those receiving intraarticular steroid after arthroscopy [14, 16, 17, 18].

Conclusion

Antibiotic prophylaxis in knee arthroscopy should not be routinely ordered since it is coasty and may have side effects as skin allergy .It can be useful in complicated knee surgeries and immune compromised patients.

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