Antibiotic Prophylaxis for Total Ankle Replacement Surgery

Sam Bazrafshan, DPM; Brian Carbonell, DPM; Kyle J. Kinmon MS, DPM, FACPAS
Julio C. Ortiz, DPM, FACFAS; Alan A. MacGill, DPM, FACFAS
Bethesda Health Podiatric Medicine and Surgery Residency Program – Boynton Beach, FL

STATEMENT OF PURPOSE
A review of the literature does not yield a consensus on the appropriate perioperative antibiotic regimen for total ankle arthroplasty. Much of the guidelines used for total ankle replacement (TAR) is borrowed from the hip and knee arthroplasty literature. While cephalosporins remain very common, intravenous vancomycin and gentamicin has gained popularity as perioperative prophylaxis. The purpose of the study is to evaluate the efficacy and complications, if any, associated with the use of a 72 hour course of intravenous vancomycin and gentamicin as a peri- and post operative antibiotic prophylactic regimen for TAR.

METHODLOGY & HYPOTHESIS
A retrospective chart review of 24 patients with 26 TARs was performed over a five year time period. Mean follow up was 36 months. A literature review was also performed by database search of online articles with key words: total joint arthroplasty, total ankle replacement, periprosthetic infection, antibiotic prophylaxis. Age, sex, tobacco use, adjunctive procedures, problematic wound healing and postoperative infection complication rates were all evaluated.

RESULTS
There were 14 females, 10 males. Average age of the patient population was 64 years. 1 tobacco user was identified in the study group. All ankle implants utilized were from the same manufacturer. 8 patients underwent adjunctive subtalar joint arthrodesis (30%), 16 patients underwent tendoachilles lengthening (61%). 6 patients experienced wound dehiscence (23%) and 4 patients experienced superficial postoperative infections requiring a course of oral antibiotics (15%). No patients required explantation of the prosthesis as a result of deep infections requiring a course of oral antibiotics (15%). No patients required explantation of the prosthesis as a result of deep infection. In our patient population, there was one incidence of acute kidney failure, which resolved after several weeks of hospital admission.

DISCUSSION AND LITERATURE REVIEW
There are no high level recommendations in the literature regarding post-operative antibiotic regimens for total ankle replacements. To our knowledge, no standard evidence based protocol currently exists. The foot and ankle literature is divided on the necessity for prophylactic antibiotic usage in elective foot and ankle surgery. There is no general consensus for prophylaxis in extensive, reconstructive cases [1]. Specifically, there is no general agreement on prophylactic antibiotic usage when prosthetic implants are used in foot and ankle surgery [1].

The discontinuation of antibiotics, 24 hours after total hip or knee arthroplasty is suggested to prevent antibiotic elicited complications. To the author’s knowledge, there is no consensus regarding antibiotic type and length of coverage for total ankle arthroplasty. There is general support for prophylactic antibiotic usage in elective foot and ankle surgery, particularly total hip arthroplasty and total knee arthroplasty [3].

The literature reviewed lacks a protocol or standardization of antibiotic usage when prosthetic implants are used in foot and ankle surgery. There is no general consensus for prophylaxis in extensive, reconstructive cases. The review of the literature reveals superficial wound complications and deep infections after total ankle replacements with rates up to 14.7% and 4.6%, respectively [2]. Staphylococcus aureus and staphylococcus epidermidis are the most documented organisms associated with infections of total joint arthroplasties, and thus an antibiotic regimen should be directed at coverage for these organisms. There is general support for prophylactic antibiotic usage in orthopedic surgery, particularly total hip arthroplasty and total knee arthroplasty [3].

Antibiotic usage in elective foot and ankle surgery is divided on the necessity for prophylactic antibiotic usage when prosthetic implants are used in foot and ankle surgery. For patients undergoing orthopedic surgeries, for patients with a confirmed beta lactam allergy, clindamycin or vancomycin is recommended [4].

The current study demonstrated promising results utilizing vancomycin and gentamicin for 72 hours post operatively, which warrants the necessity for further research in this area.

REFERENCES