Do we need routine postoperative prophylactic oral antibiotics following elective foot and ankle surgeries?

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INTRODUCTION: Previous studies have reported that the rates of postoperative infection in foot and ankle surgery range from 0.5% to 6.5%. While this number seems relatively small, the impacts of postoperative infection on the patient are not minor. Many studies about antibiotic prophylaxis in foot and ankle surgery have focused on the perioperative intravenous administration of antibiotics. There are only a few studies focusing on postoperative oral antibiotics following foot and ankle surgeries. The purpose of this study is to investigate any difference in the rate of postoperative infection and wound complications between the patients with and without postoperative oral antibiotics, and to identify independent risk factors of postoperative infection and wound complications following elective foot and ankle surgeries through multivariate logistic regression analysis.

METHODS:

A retrospective review was performed over a 2-year timespan. All elective adult foot and ankle cases with at least 6-month postoperative follow-up were included in this study. Patients were divided into two groups based on if they received postoperative oral antibiotics: Group A with postoperative oral antibiotics, and group B without postoperative oral antibiotics. We compared the rates of postoperative infections and wound complications between the two groups as well as demographic data, including age, sex, race, BMI, ASA status, smoking, diabetes mellitus, rheumatoid arthritis, hypertension, thyroid condition, and history of neoplasm. The surgical site, the number of CPT codes and incisions made in surgery were also noted. Regardless of group, all patients received preoperative IV antibiotics; cefazolin as default, and used a tourniquet during the surgery. The default postoperative oral antibiotic was cephalexin. Multivariable logistic regression analysis was performed with possible risk factors of postoperative infection and wound complications. **RESULTS:**

Total 364 patients were included in this study: 240 in Group A, and 124 in Group B. There was no significant difference in the rates of postoperative infection and wound complications between the two groups. The superficial and deep infection rate was 1.7% (4/240) and 0.8% (2/240) in Group A vs 3.2% (4/124) and 0.0% (0/124) in Group B. respectively. The rate of wound dehiscence was 5.8% (14/240) in Group A vs 4.0% (5/124) in Group B. Multivariable logistic regression analysis identified independent risk factors of postoperative infection and wound complications as follows: Smoking (OR: 4.668, 95% CI: 1.937, 11.253), male sex (OR: 3.959, 95% CI: 1.678, 9.343), history of neoplasm (OR: 6.664, 95% CI: 2.044, 21.732), and multiple incisions (OR: 4.138, 95% CI: 1.740, 9.836).

DISCUSSION AND CONCLUSION:

Based on our results, routine postoperative prophylactic oral antibiotics may not be needed following elective foot and ankle surgeries. However, for certain patient populations with risk factors including smoking, a history of neoplasm, and multiple operative skin incisions, postoperative prophylactic oral antibiotics may be indicated to decrease the chance of postoperative infection and wound complications. Future prospective randomized controlled studies with a larger sample size will be needed to provide a strong guideline for the postoperative prophylactic oral antibiotics following foot and ankle surgery. rative infection and wound complications between the two groups

| | Postoperative oral Antibiotics (Group A, n = 240) | No Postoperative oral Antibiotics (Group B, n = 126) | P Value |
|------------------------------|---|--|---------|
| Superficial infection, n (%) | 4 (1.7) | 4 (3.2) | .454 |
| Deep infection, n (%) | 2 (0.8) | 0 (0.0) | .547 |
| Wound complications, n (%) | 14 (5.8) | 5 (4.0) | .445 |

| (1) | D | Destauration | DIA |
|--------------------------------------|-------------------------------------|---|--------|
| Characteristic | and wound complications (n = 29) | non-infection and wound complication | r van |
| | | (n = 337) | |
| Age, years Mean ± SD* | 53.1 ± 14.7 | 49.7 ± 17.6 | .296 |
| Sex, n (%) | | | .004 |
| Male | 17 (58.6) | 109 (32.3) | |
| Female | 12 (41.4) | 228 (67.7) | |
| Race, n (%) | | | .662 |
| White | 28 (96.6) | 322 (95.5) | |
| Non-White | 0 (0.0) | 9 (2.7) | |
| Unknown | 1 (3.4) | 6 (1.8) | |
| BMI', kg/m ² Mean ± SD | 31.2 ± 7.9 | 32.5 ± 8.2 | .440 |
| ASA" status n (%) | - | | 411 |
| 1 | 0.00.00 | 24(7.1) | |
| 2 | 14 (48 3) | 156 (46 3) | |
| 3 | 15 (51.7) | 153 (45.4) | |
| 4 | 0.000 | 4(12) | |
| Smoking n (%) | - (| . (4.4) | .002 |
| Yes | 13 (44.8) | 68 (20.2) | |
| No | 16 (55.2) | 269 (79.8) | |
| Diabetes, n (%) | 2 (6.9) | 63 (18,7) | .111 |
| Rheumatoid arthritis, n (%) | 1(3.4) | 8 (2.4) | > .999 |
| Hypertension n (%) | 13 (44.8) | 129 (38.3) | 487 |
| Thuroid disease n (%) | 4(13.8) | 55 (163) | 802 |
| History of neonlasm n (%) | 6(20.7) | 18 (5 3) | 007 |
| Surgical site n (%) | v (wv.17 | 10 (2.2) | 52.9 |
| Hindfoot | 16 (55.2) | 206 (61 1) | |
| Other than Hindfoot | 13 (44.8) | 131 (38.9) | |
| (Forefoot/Midfoot/ | | | |
| Arthroscony) | | | |
| Number of CPT codes | | | 188 |
| n (%) | 9 (31 0) | 147 (43.6) | |
| 1 | 20 (69 0) | 100 (56.4) | |
| 2+ | 20 (03.0) | 170 (20.4) | |
| Number of incisions in (%) | | | 002 |
| 1 | 14 (48 3) | 252 (75.1) | |
| 24 | 15 (51 7) | 84 (24.9) | |
| Postoperative antibiotics | 20 (60 0) | 220 (65.2) | 690 |
| a comperance admototics, | 20 (07.0) | 440 (07.3) | .009 |

Table 3. A multivariable regression analysis investigating risk factors for postoperative infectior

| Variables | P Value | Odds Ratio (95% CI) |
|----------------------------------|---------|-----------------------|
| Age (reference: < 50) | .965 | 1.024 (.358, 2.929) |
| BMI* (reference: < 30.0) | .904 | 1.056 (.433, 2.573) |
| Smoking (reference: yes) | .001 | 4.668 (1.937, 11.253) |
| Race (reference: white) | .723 | .672 (.075, 6.045) |
| Sex (reference: male) | .002 | 3.959 (1.678, 9.343) |
| DM* (reference: yes) | .081 | .239 (.048, 1.193) |
| HTN* (reference: yes) | .204 | 1.922 (.702, 5.266) |
| ASA* (reference: 1&2) | .821 | .896 (.347, 2.314) |
| History of neoplasm | .002 | 6.664 (2.044, 21.732) |
| (reference: yes) | | |
| # of incisions | .001 | 4.138 (1.740, 9.836) |
| (reference: multiple) | | |
| # of CPT* codes | .964 | 1.022 (.396, 2.637) |
| (reference: single) | | |
| Postoperative oral Abx | .952 | .972 (.389, 2.431) |
| (reference: yes) | | |
| Surgical sites | .741 | 1.162 (.477, 2.834) |
| (reference: other than hindfoot: | | |
| forefoot/midfoot/arthroscopy) | | |

BMI, body mass index; DM, diabetes mellitus; HTN, hypertension; ASA, American Society of Anesthesiologists: CPT, Current Procedural Terminology