

Risk Factors for Below the Knee Amputation in Diabetic Foot Osteomyelitis



Whitney Hernandez, NP (1), Bryan Knepper, MPH, MSc (2), Chrystal Berg, DPM (3), Michael Wilson, MD (4), Heather Young, MD (1)

(1) Division of Infectious Diseases; (2) Department of Patient Safety and Quality; (3) Department of Orthopedics; (4) Department of Pathology
Denver Health Medical Center, Denver, CO

Background

- Diabetic foot osteomyelitis (DFO) is common and a leading cause of below knee amputation
- Despite high prevalence, optimal treatment of DFO remains undefined.

Methods

Study Design: Retrospective cohort series study

Data Collection: Variables abstracted manually from electronic medical record

Inclusion: Patients who underwent minor amputation for diagnosis of DFO and were referred to the musculoskeletal infections service

168 patients identified

Exclusion: Patients Lost to Follow up before 6 months

Results

BKA Predictors

	BKA Yes	BKA No	P
Healed at 3 months, N(%)	3 (18)	64 (58)	0.002
Path margin Positive, N(%)	5 (29)	44 (38)	0.51
Abx Duration, N(%)			0.27
0-3 weeks	10 (59)	46 (39)	
3-5 weeks	2 (12)	29 (25)	
> 5 weeks	5 (29)	42 (36)	
WBC initial, median(IQR)	8.4 (7.3-15.0)	9.0 (7.0-11.3)	0.79
Abnormal initial CRP, N(%)	15 (100)	80 (85)	0.21
Days to normal CRP, median(IQR)	26 (-)	22 (17-43)	0.83
PCP visit in 6 months, N(%)	14 (82)	54 (46)	0.005

BKA within 6 months

	Bone Margin Positive	Bone Margin Negative	P
Abx Duration, N(%)			0.59
0-3 weeks	2 (40)	8 (67)	
3-5 weeks	1 (20)	1 (8)	
> 5 weeks	2 (40)	3 (25)	
	Bone Margin Positive	Bone Margin Negative	P
Abx Duration, N(%)			0.59
0-3 weeks	2 (40)	8 (67)	
3-5 weeks	1 (20)	1 (8)	
> 5 weeks	2 (40)	3 (25)	

Healed within 3 months

	Bone Margin Positive	Bone Margin Negative	P
Abx Duration, N(%)			<0.0001
0-3 weeks	5 (19)	29 (69)	
3-5 weeks	7 (26)	10 (24)	
> 5 weeks	15 (56)	3 (7)	

Conclusions

- Tobacco use, severity of DFI, and presence of bacteremia were not associated with BKA within 6 months
- Patients who failed to heal their amputation sites in 3 months are at increased risk for BKA
- Positive bone resection margins were not at increased risk for treatment failure
- Longer duration of antibiotics did not protect against BKA in those with either a positive or negative histopathological bony or soft margin.

Strengths

- Overall success of limb salvage

Limitations

- Single-center retrospective study
- Limited number of patients available for inclusion

Future Aims

- Additional studies are warranted to evaluate if aggressive wound care can facilitate healing and prevent progression to BKA or if failure to heal is a marker of another unmeasured variable.