Mölnlycke Sponsored Learning:

The University of Texas Diabetic Foot Classification System

Presenter: Lee C Rogers, DPM FFPM RCPS (Glas)*

		Grade			
		0	1	2	3
Stage	A	Pre-ulcerative	Superficial wound	Wound penetrates to tendon/capsule	Wound penetrates to bone/joint
	B	+Infection	+Infection	+Infection	+Infection
	C	+Ischemia	+Ischemia	+Ischemia	+Ischemia
	D	+Infection and ischemia	+Infection and ischemia	+Infection and ischemia	+Infection and ischemia

Patients with diabetes often develop foot complications. These complications, such as ulceration, infection, and ischemia, can be limb-threatening and life-threatening. Timely and adequate management of these complications is critical. *The University of Texas Diabetic Foot Classification System* was developed in 1996. This is a validated assessment tool that has been widely used to stage and grade diabetic foot ulcers (DFUs). It considers the depth of the wound (i.e., grade) and associated complications, including infection and ischemia (i.e., stage). The original research study found that the risk of any level of lower extremity amputation (LEA) increases with increasing ulcer depth and number of associated complications. Therefore, limb salvage strategies should always aim to address perfusion and infection.

The VIPs of Limb Salvage

The VIPs of Limb Salvage
V: Vascular (ensure adequate perfusion)
I: Infection management
P: Pressure offloading (internal and external)
+ Social determinants of health

The VIPs of limb salvage include vascular (i.e., ensuring adequate perfusion), infection management (or source control) and pressure offloading. Of the three, infection management should always come first, as infections can spread rapidly and are limb- and life-threatening. Last, but certainly not least, the patient's social determinants of health (e.g., socioeconomic status, support system, occupation, housing, etc.) must be considered as part of limb salvage. These determinants can hinder healing and increase the patient's likelihood of a LEA and mortality.

V for Vascular

When it comes to limb salvage, "time is tissue"! Prompt referral for vascular diagnostic studies and intervention is paramount to limb salvage efforts. One of the biggest contributors to limb loss is a delay in vascular interventions. The delay is often due to a lack of symptoms, such as pain. Patients with diabetes may have concurrent peripheral artery disease and sensory neuropathy. They may not feel the pain due to the ischemia – this leads to a delay in diagnosis and intervention. CLTI is defined by the Society of Vascular Surgery as peripheral artery disease with rest pain,

lower limb ulceration or gangrene for greater than two weeks.[1] Any patient living with chronic limb threatening ischemia (CLTI) should be referred to a vascular specialist urgently.

I for Infection

In the presence of concurrent infection and ischemia, infection should always be addressed first. Infections can spread rapidly and can truly be limb- and life-threatening. Diabetic foot infection (DFI) is a clinical diagnosis – it is made based on clinical signs and symptoms. Lab diagnostic tests are often not definitive. Practitioners should refrain from taking a wound culture of a clinically uninfected wound. Wound culture is helpful for the identification of the microbes involved and for targeted antimicrobial therapy. It should never be utilized for the sole purpose of diagnosing a wound infection.

The Infectious Disease Society of America (IDSA) and the International Working Group for the Diabetic Foot (IWGDF) have helpful guidelines for the diagnosis, staging and management of DFIs. A mild infection based on the IDSA guidelines[1] can be treated predominantly in an outpatient setting with debridement and antimicrobial treatments. Severe infections (i.e., patients presenting with systemic signs and symptoms) usually requires hospitalization. Patients with moderate infections may be treated in an outpatient or inpatient setting, depending on factors such as extent of tissue loss and comorbidities. Infection management include both a medical and surgical approach. Surgical debridement and resection are helpful to remove non-viable tissue and decrease bioburden. Frequent debridement has been shown to expedite wound healing.[2]

Molnlycke® Exufiber Heel Square

P for Pressure

Foot deformities, such as ankle equinus, structural hallux limitus, hammer toes and Charcot arthropathy, can predispose patients to DFUs and delay healing. Pressure offloading can be accomplished internally (e.g., surgery) and externally (e.g., total contact casting, offloading devices). Examples of surgical offloading include Tendo-Achilles lengthening, Keller arthroplasty and Charcot foot reconstruction. The goal of offloading is to decrease direct pressure and/or shearing to expedite healing and prevent ulcerations.

Indication for Surgery and Amputation

The indication for surgery is dependent on where the patient lies in the spectrum of the course of disease. This includes the extent of infection and ischemia. Patients presenting with IDSA severe infections (i.e., systemic signs and symptoms of infection) usually require emergent surgeries. Patients presenting with IDSA moderate infections and CLTI should be referred for urgent surgeries, which may be performed the same day of referral or the next day. Patients with mild or no infection may be treated with non-urgent surgeries (e.g., surgical debridement, skin flaps and grafts, muscle tendon re-balancing etc.). Evidence suggests that patients going through surgical procedures do not usually require diabetes management optimization as it does not predict post-operative complications. Patients requiring urgent and non-urgent surgeries should have their anticoagulation therapies stopped or bridged in the meantime.

In certain cases, a LEA is the only remaining option in order to preserve a patient's limb and/or life. A

Molnlycke® Mepilex Border Flex

primary amputation (i.e., without an attempt at limb salvage) may be considered when there is:

- No option for revascularization
- The major weightbearing surface of the foot is destroyed (i.e., incompatible with ambulation)
- There is severe comorbid conditions that limit life expectancy
- Numerous surgical procedures are required to restore a viable lower limb.

A secondary amputation may be considered when one or more revascularization attempts have failed or if the likelihood of further procedures have limited success.

Lee C Rogers, DPM FFPM RCPS (Glas) is the Chief of Podiatry and Associate Professor of Podiatric Medicine and Surgery at the University of Texas Health Science Centre in San Antonio, Texas. He is the President of the American Board of Podiatric Medicine and an associate editor for the *Journal of the American Podiatric Medical Association*. He is also a Fellow Faculty in Podiatric Medicine of the Royal College of Physicians and Surgeons of Glasgow.

*** To access the full presentation, click here:** https://drive.google.com/file/d/18e2Z6lYxqYy0GuSIsHxQQbd-c74LYZkaG/view?usp=drive_link

References

1. Conte MS, Bradbury AW, Kolh P, White JV, Dick, F, FitridgeR, Mills, et al. GVG Writing Group for the Joint Guidelines of the Society for Vascular Surgery (SVS), European Society for Vascular Surgery (ESVS), and World Federation of Vascular Societies (WFVS) (2019): Global vascular guidelines on the management of chronic limb-threatening ischemia. *European Journal of Vascular and Endovascular Surgery*. 2019;58(1S): S1–S109.e33. https://lrc.michener.ca:4345/10.1016/j.ejvs.2019.05.006
2. Lipsky BA, Berendt AR, Cornia PB, Pile, J C, Peters EJ, et al. 2012 Infectious Diseases Society of America clinical practice guideline for the diagnosis and treatment of diabetic foot infections. *Journal of the American Podiatric Medical Association*. 2013;103(1): 2–7. https://lrc.michener.ca:4345/10.7547/1030002
3. Wilcox JR, Carter MJ, Covington S. Frequency of debridements and time to heal: A retrospective cohort study of 312 744 wounds. *JAMA Dermatology*. 2013;149(9): 1050–1058. https://doi.org/10.1001/jamadermatol.2013.4960

Presentation Digest is a production of Wounds Canada (www.woundscanada.ca).