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Ace Your Certification Exam

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Abstract Dr Jayesh Shah authors this quarterly column, consisting of 4 questions with explanations, to help you practice for your exam.

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1. A 49-year-old man is followed up in your clinic for a neuropathic Wagner grade 2 diabetic foot ulcer after 4 weeks of standard wound care (glucose control, debridement, off-loading with total contact casting, and moist dressing). His wound has decreased by only 20%. On examination, the wound has good granulation tissue but no evidence of epithelialization.
 - A. What will be your next step in managing this patient?
 - a. Wet-to-dry dressing
 - b. Bioengineered tissue
 - c. Collagenase
 - d. Hydrogel
 - B. After 4 weeks of advanced wound management, this wound heals completely. Now what will your main focus of management be?
 - a. Promoting patient education and adherence to therapy
 - b. Offloading the areas of greatest pressure
 - c. Reducing the risk of recurrence
 - d. Maintaining good metabolic control
2. Which is the best method of off-loading in patients with neuropathic diabetic foot ulcer who are not able to eliminate weight bearing totally for the affected foot?
 - a. Half shoes
 - b. Felted foam
 - c. Total contact casting
 - d. Healing sandal
3. What is the primary factor in the development of pedal ulceration in the neuropathic patient?
 - a. Altered nitric oxide metabolism
 - b. Foot deformity
 - c. Lack of protective sensation
 - d. Neuronal demyelination
4. For the treatment of diabetic foot ulcer, which of the advanced modalities listed below has received FDA approval and randomized trials?
 - a. Regranex
 - b. Hyperbaric oxygen therapy
 - c. Dermagraft
 - d. Apligraf
 - e. All of the above

Answers on back page.

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Answers

1A, b; 1B, c; 2, c; 3, c; 4, e

Question 1A: Answer b

When wound healing stalls in spite of standard wound management in a patient with a diabetic wound, early adoption of advanced therapies is advocated in order to accelerate wound healing and decrease complications, especially if the wound's percentage area reduction is <50% after 4 weeks of therapy. The next step in this patient, who has a classic neuropathic Wagner grade 2 ulcer, is to apply bioengineered tissue to expedite healing. Wet-to-dry dressing is not a standard of care. Hydrogel will help to keep the wound moist, but as the patient has not healed with standard wound care, advanced wound therapy with bioengineered tissue is the correct next step. Collagenase (enzymatic debridement) is not necessary as the wound bed shows good granulation tissue.

Question 1B: Answer c

After the ulcer has healed, management should focus on *reducing the risk of recurrence*. A team approach to preventing complications in patients with diabetes should incorporate the following elements: regular risk assessment, tight glycemic control, complete annual biomechanical assessment, appropriate orthosis and footwear

prescription, preemptive surgical intervention when appropriate, and a comprehensive program of patient education and reeducation.

Question 2: Answer c

Total avoidance of weight bearing is most effective, but when total avoidance is not possible, the total contact cast is the best-accepted method of off-loading. In recent studies, removable cast walkers have been demonstrated to be good alternatives to total contact casts in reducing plantar mean peak pressure.

Question 3: Answer c

The lack of protective sensation in the neuropathic patient is the primary factor in development of pedal ulceration. The cause of neuropathy is multifactorial and includes neuronal demyelination and atrophy and possible altered nitric oxide metabolism. Foot deformity also contributes to the development of a foot ulcer, but lack of protective sensation is the primary factor in its development.

Question 4: Answer e

Regranex, hyperbaric oxygen therapy, Dermagraft, and Apligraf all have FDA approval and randomized trials supporting their evidence-based use in patients with diabetic foot ulceration.