

12. SKIN ULCERS

Principles

- To recognize the clinical presentation of sickle cell skin ulcers.
- To provide appropriate treatment of skin ulcers.
- To provide supportive therapy for skin ulcers, including appropriate pain management.
- To prevent de novo and recurrent skin ulcers.

Recommendations

- Patients should be educated on the importance of avoiding trauma, especially to the lower leg and feet, and carefully attending to any small injuries.
- Patients should be instructed to seek medical attention quickly if evidence of a leg ulcer is noted, since early diagnosis and management are critical.
- Wound care is the mainstay of therapy, and should be administered and/or prescribed by an individual with expertise in skin ulcers.
- RGD peptide matrix is likely to speed healing.
- Wound swabs should only be performed if there is clinical evidence of infection.
- If a wound swab is positive, systemic antibiotics should only be administered if there is clinical evidence of infection.
- Bed rest, elevation of the leg, and supporting elastic bandages may be beneficial, but should be considered on a case-by-case basis.
- Interruption or discontinuation of hydroxyurea may be considered in a patient on hydroxyurea with a non-healing or slowly healing skin ulcer.
- Pain from the ulcer should be treated with oral analgesics at optimal doses.

Background

Skin ulcers associated with sickle cell disease (SCD) are rare before 10 years of age. Usually the first episode will occur between the ages of 10 and 50 years.^{1,2} Known risk factors include sickle cell anemia (HbSS) genotype, low hemoglobin level, and venous insufficiency.³ High fetal hemoglobin (HbF) levels appear to be protective.² There may be geographic variation in rates, with higher incidence reported in Jamaica than the United States.

The mechanism of onset of skin ulceration can vary. Approximately half of cases are caused by local trauma, which can result from insect bites, simple scrapes, or injury. The remaining cases are apparently spontaneous, likely caused by skin infarction. There is a higher prevalence of skin ulcers in areas with lower amounts of subcutaneous fat, thinner skin, and decreased blood flow.⁴ Most ulcers occur around the medial or lateral malleoli, but can also begin on the anterior shin or dorsum of the foot. Ulcers are typically well demarcated, with a punched-out appearance and a base of granulation tissue. Healing generally takes months to years, with subsequent recurrence of 25% to 52%.² The risk of secondary bacterial infection in these open wounds is high. One must be cautious in interpreting results of bacterial swabs, however, as the wound is colonized almost universally.

Treatment

Treatment consists of measures to keep the lesion clean and to reduce hemostasis and lymphedema. Randomized, controlled trials of Solcoseryl or Duoderm⁵ or propionyl-L-carnitine⁶ did not show benefit; however, arginine-glycine-aspartic acid (RGD) peptide matrix does result in nearly three times faster healing than control (saline) treatment.⁷ Debriding may be required to facilitate healing. The role of topical antimicrobial products is unclear.⁸ Systemic antibiotics should only be administered if there is clinical evidence of infection. Bed rest, elevation of the leg, and supporting elastic bandages have been beneficial anecdotally.¹ Daily cleansing of the affected area may also aid healing.

There is limited evidence of modest benefit in ulcer healing for other measures, including oral zinc supplementation⁹ and transfusion to normal hemoglobin.¹⁰ Patients with recurrent or refractory skin ulcers may benefit from chronic simple or exchange transfusions, although there is a lack of high quality studies to support this practice.

There are conflicting reports as to the role of hydroxyurea. In other hematologic diseases, hydroxyurea has been associated with new ulcer formation,¹¹ and some observational reports in SCD have shown potential association with new ulcers¹² or worsening of existing ulcers.¹³ Conversely, a systematic review found that hydroxyurea treatment in adults with SCD was not associated with skin ulcers, although this conclusion was based on limited evidence from the literature. Further study is required. Decisions about chronic use of hydroxyurea should take into consideration the balance of all potential benefits and risks to the individual patient.

Pain

Pain from the ulcer may be substantial, and should be managed with appropriate oral analgesia. Successful adjunctive therapy with topical opioids has been reported in patients with refractory pain.¹⁴

Surgery

Surgical management of leg ulcers requires further study. Skin grafts using pinch grafting techniques may improve healing, but most ulcer recurrence occurs within 2 years.¹⁵

Prevention

The only clear way of preventing ulcers is to avoid trauma. Any injury, even small scratches or insect bites, should be attended to conscientiously to encourage rapid healing. Once an ulcer has healed, support stockings may reduce the risks of skin breakdown.¹

References

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