Amputation Date Cancelled Due to the Use of Transdermal, Sustained Oxygen Therapy in the Healing of a Diabetic Foot Ulcer with Osteomyelitis

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Introduction

Approximately 25 million Americans suffer from chronic open wounds that can lead to the development of complications such as infection, pain, and loss of function. Hypoxemia caused by disruped vasculature is a key component in the pathophysiology of chronic wounds. Recent works by Babior showed that high concentration of ROS led to extensive bacterial killing. Work by Babior showed that high concentration of ROS led to extensive bacterial killing. Recent works by Hunt & others have created a new understanding of oxygen in wound healing. Hypoxemia caused by disruped vasculature is a key component in the pathophysiology of chronic wounds. Recent works by Babior showed that high concentration of ROS led to extensive bacterial killing. Work by Babior showed that high concentration of ROS led to extensive bacterial killing. Recent works by Hunt & others have created a new understanding of oxygen in wound healing.

Case Study

A 77 year old physically active male with a history of IDDM and arterial insufficiency presented with a neuropathic ulcer with osteomyelitis on the medial aspect of the right first metatarsal head. The ulcer had been present for more than 47 days and had been treated with a wet-to-dry gauze dressing. Additionally, he received Augmentin 875mg BIDx 19 days. There had been no improvement. The patient had a prior history of toe amputations on the same foot due to ulcers with osteomyelitis. A below the knee amputation was scheduled. The patient had a prior history of toe amputations on the same foot due to ulcers with osteomyelitis. A below the knee amputation was scheduled. The patient had a prior history of toe amputations on the same foot due to ulcers with osteomyelitis. A below the knee amputation was scheduled. The patient had a prior history of toe amputations on the same foot due to ulcers with osteomyelitis. A below the knee amputation was scheduled. The patient had a prior history of toe amputations on the same foot due to ulcers with osteomyelitis. A below the knee amputation was scheduled.

Assessment

The wound measured 2.5cm x 2.5cm x 1.0cm. The wound bed had exposed bone and contained dusky pink, gray tissue. The wound border was circumscribed with a 0.5cm area of black,事宜 color. The wound dressing was removed and the wound was cleaned. The patient did not experience any pain. The toenails were free from hyperkeratosis. The patient was placed in a hyperbaric chamber for 100psi and 60 minutes.

Goals of Therapy

1. Heal the osteomyelitis without amputation
2. Close the wound
3. Protect the area from pressure
4. Provide a simple, easy to change bandage system
5. Permit the patient to continue with his active lifestyle

Conclusion

Transdermal, sustained oxygen therapy was effective in the treatment of this osteomyelitis, the wound healing proceeded. We were successful in achieving our goals of avoiding the amputation, healing the osteomyelitis, closing the wound and keeping it closed, providing the patient with improved self care, mobility and no technology that prevented the patient from engaging physically active during the treatment period.

Protocol

On 11/1/04, the wound was debrided and cleansed. An EpiFLO® therapy cannula was placed directly into the wound bed. The cannula was then covered by an Aquacell Ag® dressing and covered with an occlusive, clear film dressing. The EpiFLO® device pumped 3ml of > 99% pure oxygen into the wound bed, 24 hours a day, 7 days a week. The dressing was changed when the Aquacell Ag® had become saturated. The wound has remained closed.

References

3. Hunt TK, Hussain Z, Sen CK. Give me ROS or give me death. Pressure 2001; 30:10-17
5. Said HK, Mustoe, T, et al. American College of Surgeons Clinical Congress, Oct 2002 and article accepted for publication in the Archives of Surgery

Device Application

Use of EpiFLO® when compression is not required

Step One: Place the sterile cannula near the edge of the wound bed.

Step Two: Cover the wound with an occlusive dressing.

Step Three: Secure EpiFLO® in place with tape or in a pouch.

Use of EpiFLO® with compression for venous stasis ulcers

Step One: Place the sterile cannula near the edge of the wound bed.

Step Two: A protective gauze wrap is carefully wrapped around the leg. Care is taken not to kink the catheter.

Step Three: A Profore® compression dressing is secured to the leg. Care is taken not to kink the catheter.

Step Four: The Profore® dressing is covered with a protective bandage and EpiFLO® is secured into place with tape.