Near-infrared Spectroscopy of Lower Extremity Wounds

Policy Number: 2.01.505  Last Review: 7/2014
Origination: 1/2012  Next Review: 1/2015

Policy
Blue Cross and Blue Shield of Kansas City (Blue KC) will not provide coverage for near-infrared spectroscopy studies of lower extremity wounds. This is considered investigational.

When Policy Topic is covered
Not Applicable

When Policy Topic is not covered
The use of near-infrared spectroscopy for assessing tissue oxygenation in lower extremity wounds is considered investigational.

Description of Procedure or Service
Near-infrared spectroscopy (NIRS) is a method of measuring the oxyhemoglobin in tissues several centimeters deep within wounds, mainly diabetic foot ulcers. Levels of oxyhemoglobin indicate whether a wound is healing. NIRS is non-invasive and utilizes a detector and a dispersive element to allow the intensity at different wavelengths to be recorded. This type of measurement determines the level of oxyhemoglobin and aids the clinician’s ability to assess the effectiveness of current wound treatment and adapt or change it if necessary.

Rationale
Weingarten, et al. (2010) evaluated the efficacy of using diffuse near infrared spectroscopy (NIRS) in predicting wound healing in diabetic foot ulcers. Sixteen chronic diabetic wounds were followed and assessed for subsurface oxyhemoglobin concentration using the NIRS device. Weekly measurements were conducted until there was wound closure, limb amputation, or 20 completed visits without healing. Wound size and degree of wound contraction were measured by image analysis of digital photographs, and results were compared to NIRS results. In the 16 patients followed, seven wounds healed, six limbs were amputated, and three wounds remained opened after 20 visits. Initial values of subsurface hemoglobin concentration, in all wounds, were higher than in nonwound control sites. Healed wounds exhibited a consistent reduction of hemoglobin concentration several weeks prior to closure, and the absolute hemoglobin concentration approached the value at the control site. In wounds that did not heal or ended in amputations, the hemoglobin concentration remained elevated throughout the study. A negative slope for the rate of change of hemoglobin concentration was indicative of healing across all wounds. The authors concluded that evaluation of diabetic foot ulcers using NIRS may provide an effective and more complete measurement of wound healing compared to current clinical approaches.

Due to a lack of published studies with larger patient populations, no conclusion can be drawn regarding the efficacy of this technology, therefore it is considered investigational.

References:

**Billing Coding/Physician Documentation Information**

0286T Near-infrared spectroscopy studies of lower extremity wounds (eg, for oxyhemoglobin measurement)

**Additional Policy Key Words**

N/A

**Policy Implementation/Update Information**

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