

Dr. Gary Sibbald Addresses the Challenges of Compression



R. Gary Sibbald

Q Can I apply compression to a leg with:

- A)** An active infection?
- B)** Deep thrombophlebitis?
- C)** Pain?

A *Traditional teaching has often stated that we should not compress an extremity with active infection or thrombo-phlebitis. Patients will not let us squeeze legs that are extremely painful!*

A. An Active Infection

Infection is the result of a complex relationship as outlined in the following equation:

$$\text{Infection} = \frac{\text{Bacterial numbers} \times \text{Virulence}}{\text{Host resistance}}$$

The most important factor is host resistance. We know that there are systemic and local factors that contribute to host resistance. One of the local factors that promote bacterial growth is uncontrolled edema. To treat edema we need to first assess the cause. If edema is the result of congestive heart failure or low albumen, the treatment is

systemic. If, however, local factors such as venous insufficiency are the cause, a patient will benefit from external compression.



Infections can be in the superficial wound bed deep compartment (critical colonization), in the surrounding skin (cellulitis) or present in bone (osteomyelitis). All deep infections usually require systemic antimicrobial agents. The trick for compression therapy is to use a system that allows frequent examination of the surface skin. This is

usually translated into using a reusable system — elastic bandage, short-stretch or long-stretch bandages. Local skin examination should be performed daily for acute infections and every second to fourth day for subacute or chronic cases as control of bacterial burden is obtained.

B. Deep Thrombophlebitis

Deep thrombophlebitis usually presents with an extremely painful leg due to a clot in the deep

R. Gary Sibbald, BSc, MD, FRCPC (Med, Derm), MACP, DABD, is the Associate Professor of Medicine and Director of Continuing Medical Education, Department of Medicine, University of Toronto. He is a board-certified internal medicine and dermatology specialist in both Canada and the U.S. based at the University of Toronto and in private practice in Mississauga. He has had a special interest in wound-care education, research and patient care for the past 15 years. He is the clinical section editor for *Wounds*, an international advisor for the *Journal of Wound Care* and co-editor of the third edition of *Chronic Wound Care: A Clinical Sourcebook for Healthcare Professionals*.

	COMPRESSION	SUPPORT
Type of system	Elastic	Inelastic
pattern of pressure		
Rest	High pressure	Low pressure
Muscle Contraction	High pressure but less	High pressure
Low Compression	Single layer elastic bandages	Unna's boot
High Compression	Long-stretch four layer	Short-stretch Modified Unna's boot (Duke boot)

venous system (clots below the knee are less likely to cause pulmonary emboli). Diagnosis is made with the non-invasive duplex Doppler and there is little need for an invasive venogram. There is no evidence that applying external pressure will increase the likelihood of clot mobilization. Either elastic systems or increasing edema will increase local pain. Inelastic systems (short-stretch bandages, thromboembolic stockings) can be used for edema control. A short-stretch system will not exert pressure at rest but only with muscle contraction. The pressure comes from within against a fixed resistance as

outlined in the diagram below.

There is a difference between compression and support. Compression is an elastic system with high pressure at rest and high but less pressure with muscle contraction. A support system is relatively rigid (inelastic) giving very little pressure at rest and high pressure with muscle contraction against a fixed resistance.

C. Pain

Painful legs especially those with open, oozing wounds and uncorrected edema create a clinician's nightmare! The edema will aggravate the pain. If nothing can be applied externally, start with

the legs up to the level of the heart. This is often accomplished with a two-seater couch and two pillows below the couch arm with nothing under the knees. Burgers exercises can be performed every 30 to 60 minutes, rotating the ankle 10 times and then dorsiflexing the foot a similar number of times. Patients should be encouraged to sleep in bed at night with their legs up on pillows or the foot of the bed elevated 30 degrees. If they cannot lie flat, patents need to be checked for congestive heart failure.

The periodicity and character of the pain should also be assessed. Pain should be characterized as episodic (with debride-

ment), intermittent (with dressing changes) or continuous, and the timing of pain control medication should be tailored to the corresponding need. Aching pain is nociceptive (normal nerve function) and needs to be approached with the World Health Organization ladder: acetaminophen or aspirin progressing to mild and stronger narcotics. Most chronic wounds also have a burning, stinging, stabbing or shooting pain component as well. This type of pain is neuropathic (nerve irritation or injury) and requires tricyclics (second-generation agents such as Nortriptyline, 10 to 30 mg at

Continued on page 48



**Professionals demand it.
Coverlet Fabric Dressings deliver it.**



BSN-JOBST, Inc.
Charlotte, NC 28209
52097 R1

© 2003 BSN-JOBST, Inc.

® = registered trademark

www.jobst.com

Rev. 09/03

Coverlet® #1 Choice in Latex-Free Fabric Dressings

Protection

Coverlet's 360° adhesive coverage around the island wound pad seals off the wound from dirt and contamination.

Comfort

Unique cloth conforms to the curves and contours of the skin better than any other dressing allowing it to stay on longer.

Versatility

Coverlet comes in 13 shapes and sizes – to fit all parts of the body from the nose to the toes!