# Clinical Digest

## Pain Management

### Can Massage Relieve Metastatic Bone Pain?

Past research indicates that up to 45% of patients with cancer experience intolerable pain from bone metastases. Studies of the effects of massage therapy (MT) on patients with this type of pain have not been conducted, according to researchers from Chang Gung Institute of Technology, Tao-Yuan, Taiwan; University of Illinois, Chicago; and University of Washington and Fred Hutchinson Cancer Research Center, both in Seattle. Using a quasi-experimental, one-group, pretest-posttest design with repeated measures, they analyzed MT's effects across time in Taiwanese inpatients who had radiologically evident bone metastases; moderate bone pain; and no physical contraindications to MT, major procedures scheduled during admission, or physical or psychological impairments.

Of 227 patients from five inpatient oncology units, 36 met inclusion criteria for the study and 30 consented to participate. The participants ranged in age from 33 to 75 years, and most (63%) were female. All 30 received a 45-minute, full body massage from the same MT-trained nurse; filled out preintervention and postintervention pain and anxiety measures; had heart rate (HR) and mean arterial pressure (MAP) measured once before and six times (during the first 30 minutes) after receiving MT; and answered open-ended questions about the perceived benefits of the MT.

Most studies of MT measure outcomes at only one or two time points, but these pilot study results indicated that a single session of MT had immediate, short-term (between 10 and 30 minutes), intermediate (1 to 2.5 hours), and long-term (16 to 18 hours) benefits of reduced pain intensity and anxiety. The most prevalent perceived benefit of receiving massage, the researchers say, was subjective muscle relaxation or generalized relaxation—even though this was not reflected in lower HR or MAP. This may have been due to the nature of disease progression; the researchers postulate that patients tended to have a high level of physiologic arousal due to anticancer treatment effects and their moderate to severe bone pain. Environmental distractions also may have played a part, they say, since nearly all the patients received their massage in shared hospital rooms.

Some participants were concerned that even light massage would provoke pain. No patient reported any adverse effects as a result of the MT, however. In interviews, patients said MT made them feel secure, helped relieve pain, improved sleep and circulation, and reduced anxiety and stress. Their comments included: "It helped me easily enter deep sleep because I felt generalized comfort after the massage," and "Although massage couldn't decrease my pain as much as analgesics, it did give a lot of relief of my emotional tension." One patient said, "I almost forgot the existence of pain."

Source: *J Pain Symptom Manage.* 2009;37(4):754–763. doi:10.1016/j.jpainsymman.2008.04.021.

## Infectious Disease

### Colonizing Spacers

The use of spacer devices is encouraged to increase drug delivery from pressurized metered dose inhalers, and these devices particularly are used by young children. Without proper cleansing (recommended at least once per week), bacteria can grow in spacers. To find out which spacer devices are less likely to colonize with pathogenic microorganisms after 24 hours, researchers from Medical Centre Leeuwarden, Leeuwarden; Laboratory for Public Health, Leeuwarden; and the University of Groningen, Groningen, all in the Netherlands, conducted a series of in vitro studies using Petri dishes and three types of spacers with and without inhaled corticosteroids (ICSs).

The researchers sprayed one week's worth of ICS doses onto 45 cleaned and dried spacers (15 of each type), allowed the steroids to sediment, and inoculated them with 40 µL of a 2 McFarland suspension. Forty-five spacers were not sprayed with ICSs prior to inoculation. After four hours, 60 of the 90 spacers were colonized, with no differences between the three types of spacers or between those with and without ICSs. After 24 hours, 26 spacers still yielded viable microorganisms: eight Volumatic spacers (GlaxoWellcomeKline, Zeist, The Netherlands), 17 Aerochamber spacers (Astra Zeneca, Zoetermeer, The Netherlands), and 1 Nebuhaler spacer (Trudell, London, Ontario, Canada). Fifteen spacers with ICS were still contaminated after 24 hours, as were 11 spacers without ICS.

To determine which of seven types of bacteria survived after 24 hours, the researchers applied the microorganisms in three spacers of each type both with and without inhaled ICSs, for a total of 18 spacers per organism. *Candida albicans, Staphylococcus aureus*, and *Pseudomonas aeruginosa* grew in five, seven, and 12 spacers,

Continued on page 36

Continued from page 31

respectively. The researchers acknowledge that, for patients with asthma, those pathogens are probably not important. For patients with recurrent pulmonary infections, however, the findings could be relevant.

To determine if ICS type affected bacterial growth, the researchers sprayed 14 doses of fluticasone, bectomethasone, or budesonide onto polystyrene Petri dishes. Three dishes were used for every combination of ICS and microorganism, for a total of nine dishes per bacterium. Microorganisms survived on the dishes with fluticasone and bectomethasone but not with budesonide. In fact, budesonide had a significant negative effect on microorganism survival. The researchers suggest that budesonide may be more bactericidal.

They note that the low bacterial growth rate after 24 hours on the metal Nebuhaler could not be explained by the effect of budesonide. They suggest the source material of the spacers may have made a difference for that outcome: The Volumatic is made of polycarbonate and the Aerochamber of polyethylene.

The researchers advise teaching patients not to touch spacers on the inside after cleaning them and to allow enough time for them to dry. They point out that sometimes spacers will be left open but say that might be a good thing in that it reduces the survival of microorganisms, which did tend to decline in number over time.

Source: *Am J Infect Control.* 2009;37(3):237–240. doi:10.1016/j.ajic.2008.05.006.