**INTERVIEW**

with — Dr. Selma Camargo São Paulo, Brazil

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**Q:** Can every cancer patient who develops oral mucositis be treated and benefit from laser treatment?

**A:** Yes, certainly. All patients, without restriction, can benefit from laser treatment. Patients that develop mucositis from radio- or chemotherapy and are undergoing different treatment protocols can be treated with laser. Laser is indicated in a preventive approach or to treat mucositis.

**Q:** How does laser treatment act on mucositis-affected areas? Does laser work based on a specific mechanism to control the spread of oral mucositis or does it accelerate the healing process?

**A:** There are three basic actions of laser light: It promotes analgesia, controls the inflammatory process and acts as a cellular biomodulator, stimulating the healing process.

**Q:** What are the main effects of oral mucositis treatment using low-intensity laser therapy for the quality of life of oncology patients?

**A:** Most patients with Grade 3 or 4 oral mucositis cannot eat because of the extent of the extremely aggressive lesions and high-intensity pain. Since they are unable to eat, there is a risk that their overall condition will worsen. Laser acts in accelerating the healing process of oral mucositis, repairing lesions faster. Besides that, thanks to its analgesic effects, laser eliminates or at least diminishes the pain, allowing patients to consume food immediately.

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**Dr. Selma Camargo** has a master’s degree and a PhD in endodontics from the University of São Paulo, Brazil. She teaches endodontics, lectures at and coordinates the General Dentistry Clinic for Adults at the Universidade Cidade de São Paulo, Brazil, lectures on lasers in dentistry and is coordinator of the laser in dentistry unit at the university.

**Dr. Susana Teitelbaum** has a master’s degree in pediatric dentistry and laser dentistry. Since 2013, she has taught laser dentistry at the Instituto de Tecnologia Avanzada, Monterrey, Mexico. Dr. Teitelbaum is also a member of the Grupo de Estética Orofacial Argentina in the field of laser dentistry and of the Comisión Científica de la Asociación Odontológica in Uruguay. She has held over 100 presentations in laser and pediatric dentistry.
Q: Should laser treatment be part of a multidisciplinary treatment for oral mucositis or is it curative by itself?
A: Treatment with laser is curative on its own, but there is no doubt that a multidisciplinary approach involving medical doctors, nurses, nutritionists, hygienists, dentists and laser specialists is always preferable when treating cancer patients. It is also necessary to improve or at least maintain the patient’s hygiene habits to improve the situation.

Q: Is laser treatment indicated for patients who have not developed oral mucositis, but are at risk of it? Is there a specific protocol for each case?
A: The protocols depend on the neoplastic pathology. Different medication and treatments are used for each pathology. Based on that, specific laser protocols are adapted for every situation. For example, almost all patients who are undergoing radiotherapy entailing irradiation of the head and neck areas will develop some form of oral mucositis. Those patients can be scheduled for laser treatment focusing on oral mucositis prevention.

Q: Concerning the most severe cases, how many laser applications are needed to obtain a satisfactory result? How often should treatment be performed to ensure an effective outcome?
A: Laser treatment protocols depend on the chemo- or radiotherapy program. Laser treatment is performed on the patient from the first day of cancer treatment. Depending on the chemical medication used for cancer treatment, the incidence and severity of mucositis may be higher. In such cases, laser irradiation can be performed every day, continuing for up to ten days, even after chemo- or radiotherapy has been completed, or until it is needed.

Q: Does the patient feel pain during laser application?
A: Absolutely not. In fact, what happens is the opposite: Patients feel released from pain during laser irradiation. The laser used for these treatments is of low intensity and not invasive. The light stimulates intracellular processes, accelerates healing and controls pain.

Q: Can laser therapy have a preventive effect or is it just curative?
A: Laser has both effects: It treats lesions in the case of an existing injury and prevents development of oral mucositis when correctly indicated. For example, in bone marrow transplant patients, laser treatment starts a few days before they receive their new cells in order to prevent or minimize the development of oral mucositis.

Q: How was oral mucositis treated before the use of lasers?
A: Before the use of low-intensity lasers, patients did mouth rinsing with serum, chemical products, homemade chemical concoctions or topical anesthetic products. These treatments only focused on oral mucositis symptoms and did not help or accelerate wound healing.

Q: Is it possible to say that the use of low-intensity laser for oral mucositis treatment shortens the cancer treatment as a whole?
A: Yes. Mucositis is a dramatic, though expected, side effect of oncological treatment. If it is severe, patients cannot eat or drink and their general condition decreases significantly. Therefore, oncological treatments have to be suspended until the mucositis lesions have resolved. Since laser treatment accelerates the healing process, the chemo- or radiotherapy can soon resume according to schedule and treatment is not protracted.

Q: Does laser treatment have positive emotional repercussions in the lives of cancer patients?
A: Patients feel better emotionally for the simple fact that their pain recedes. That brings great relief, especially for patients who are facing such a difficult time in their lives. It is definitely very positive for the patient’s quality of life.

Q: The World Health Organization classifies oral mucositis into five grades, from 0 (when there is no change) to 4 (when oral intake becomes impossible owing to the lesions). Does low-intensity laser produce beneficial effects in all grades from 1 to 4?
A: Low-intensity lasers benefit all grades of mucositis. Patients treated with established laser protocols before starting chemotherapy or radiotherapy will not develop severe mucositis, Grade 3 or 4.

Q: Are there differences in terms of protocols and results of low-intensity laser treatment in children and adults?
A: Both adults and children have very positive results with laser therapy. There are no differences in the effects from this point of view. However, differences become relevant depending on the oncological protocol and chemical medication used. The chemotherapy doses used in children’s treatments are three times more aggressive than the ones used in adults. Side effects are related to the drugs’ aggressiveness.

Q: In children, is there a minimum age for use of low-intensity laser?
A: There is no established age limit for use of low-intensity laser. Even newborns can be treated with low-intensity laser therapy, and no side effects or problems have been described in the literature—quite the opposite: It brings relief from pain and aids well-being.

Q: What should training of health care professionals in the application of laser for the treatment of oral mucositis entail?
A: Advanced training is important in order to apply laser. Professionals must understand the physics and emission characteristics of each laser wavelength, absorption spectra of the target tissue, mucositis development process, laser application protocols, etc. It’s necessary to have both academic training and specialization in oncology.