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Brief Report

Modulating the Er:YAG laser

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Keywords

CO₂ laser; collagen; rejuvenation; resurfacing; thermal injury

Abstract

Background and Objectives

In the past 2 years, there has been some controversy about the optimal laser system, or combination of systems, for cutaneous resurfacing. Initially, it seemed that the Er:YAG laser would have significant advantages over the CO₂ laser. In practice, some of those who jumped early onto the Er:YAG bandwagon have been unimpressed with the degree of skin tightening that can be achieved with this system. Also, the excessive bleeding induced by the Er:YAG lasers prevented deeper vaporization. During the past 18 months, three new "modulated" Er:YAG lasers have been produced that are said to be able to achieve CO₂ laser-like effects, while maintaining the Er:YAG laser advantages. The purpose of this article is to examine these new systems and to discuss their potential benefits, if any, over the "conventional" Er:YAG lasers, and the CO₂ lasers.

Study Design/Materials and Methods

The author has collected data from his own experience and that of his colleagues in the department of dermatology at University of California at San Francisco. The author has used all three types of modulated Er:YAG laser on patients presenting for cosmetic laser resurfacing and the treatment of many benign conditions over an 18-month period.

Results

All three modulated forms of Er:YAG lasers have been demonstrated to provide better coagulation than the conventional Er:YAG lasers. The Derma-K and the Contour Er:YAG lasers were able to induce tissue contraction/desiccation similar to the CO₂ laser. The author and his colleagues have induced only two cases of permanent hypopigmentation in over 50 cases during the past 18 months while using the Er:YAG laser, significantly less than might be expected with the CO₂ lasers.

Conclusions

If a laser surgeon is happy with the results obtained with a high-energy, short-pulse CO₂ laser, then there

seems little reason to consider changing to an Er:YAG laser. The modulated Er:YAG lasers have definite advantages over the conventional Er:YAG lasers. They exhibit better control of hemostasis and can ablate tissue to a greater depth than the conventional Er:YAG lasers. The Er:YAG lasers might induce less permanent hypopigmentation than the CO₂ lasers. Lasers Surg. Med. 26:223-226, 2000 © 2000 Wiley-Liss, Inc.

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