Effect of low fluence Q-Switched Nd:YAG laser on the incidence of PIH following CO₂ Laser treatment

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Most common complication developing after cosmetic procedures is postinflammatory hyperpigmentation (PIH), especially in dark skinned individuals. The pathogenesis of PIH includes an increase in melanin production and an abnormal distribution of this pigment. After trauma or cutaneous inflammation, melanocytes can react with increased production of melanin, reflected clinically as hyperpigmentation. Recently, the 1064nm Q-switched Nd:YAG laser (QSNYL) has been attempted for the treatment of melasma and PIH. With short pulse duration and low fluence, the laser could cause highly selective destruction of melanosomes without killing melanocytes. 24 patients were treated with CO₂ laser for benign acquired melanocytic nevi of face. Split-face study was conducted with 5 to 7-ns pulse width, 1064nm QSNYL, 8 mm spot size, 1.6J/cm² fluence, and three passes as pretreatment. High-quality digital photographs were obtained at baseline and 1, 2, 3, 4 weeks after laser treatment. These were assessed for presence of hyperpigmentation independently by two blinded evaluators. As a result, there was no significant difference in the incidence of PIH after CO₂ laser. Because PIH may be developed or aggravated by multifactorial factors such as UV, inherited individual chromatic tendency of melanocytes and keratinocytes, and laser-induced dermal wound and inflammation, both preoperative and postoperative care may be necessary for reducing PIH after laser therapy.

Key Words: postinflammatory hyperpigmentation, 1064nm Q-switched Nd:YAG laser.