Tattoos: A Survey of Patient Satisfaction

John G. Stoner, Jr, DO; Ira J. Berman, MD; John G. Stoner, Sr, MD

Over the past several decades, the number of people with tattoos has increased substantially. Q-switched lasers represent the standard of care for people who remove their tattoos. A survey was distributed to 2493 patients registering at a private dermatology practice. The survey consisted of 9 questions to determine the number of patients with tattoos, their satisfaction level with their tattoos, and whether they would be willing to spend $1000 or more to achieve removal. Two hundred forty-six patients (10%) had 1 or more tattoos, but only 5 patients (2%) were willing to pay for laser removal. This study supports the theory that most people either enjoy or tolerate their tattoos. There is a growing number of people in the population with tattoos, and even if only a small percentage were to opt for removal, that number would still represent a substantial number of people who are willing to pay for the procedure. Therefore, purchasing Q-switched laser systems may be financially advantageous to a physician who has a laser referral center and is willing to aggressively market a laser practice.

We contend that most people either enjoy or tolerate their tattoos. Only a small percentage of people consider having them removed, and an even smaller number are actually willing to pay for removal. Through a survey distributed to our patients, we were able to determine the prevalence of tattoos among patients in a general dermatology practice, as well as interest in tattoo removal and the feasibility of investing in tattoo laser removal systems for a general dermatology practice.

BACKGROUND

The art of tattooing has been a decorative aspect of human society since 12,000 BC.[1] People get tattoos for cosmetic and medical reasons from both professional and amateur artists. Tattoos are placed for identification (eg, radiation port sites, prisoners of war, gang members) and because of trauma (eg, pencil lead, asphalt, gunpowder).[2] Tattoos may serve as religious or social statements or simply as a form of self-expression.[3,4]

Until recently, tattoos were most commonly seen on military personnel or motorcyclists; today, however, they are seen on people of all races and backgrounds.[4,5] The average cost of a tattoo during World War II ranged from 50 cents to $1.[1,2] Today, body art fanatics are willing to spend thousands of dollars for a tattoo. As tattooing has gained social acceptance, the popularity of skin coloring also has increased. In Western society, about 3% to 5% of the general population is adorned with at least 1 tattoo.[6] Half of the 18- to 29-year-old age group are estimated to boast 1 or more tattoos.[7]

Motivations for tattoo removal vary. The most frequently cited reasons are feelings of dissociation from the past and improving self-identity. External factors, such as job discrimination, rarely are reasons for removal.[3,4,6]

Traditional methods of tattoo removal include dermabrasion, excision, salabrasion, chemical peels, electrocautery, and cryotherapy. These methods are destructive

Dr. J.G. Stoner, Jr, was a medical student, Philadelphia College of Osteopathic Medicine, Pennsylvania. Drs. Berman and J.G. Stoner, Sr, are Dermatologists, Dermatology Associates, York, Pennsylvania.

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and nonselective and may result in hypertrophic scarring, keloids, and permanent pigmentary alteration.[3,8-10] These older techniques have largely been replaced with pigment-specific Q-switched lasers, which have increased the safety and reliability of tattoo removal. Three types of Q-switched lasers are used for tattoo removal: the Q-switched ruby laser (694 nm), the Q-switched Nd:YAG laser (532 nm, 1064 nm), and the Q-switched Alexandrite laser (755 nm). The Q-switched ruby and Alexandrite lasers are useful for removing black, blue, and green pigmentation; the Q-switched 532-nm Nd:YAG laser can be used for erasing red pigmentation; and the 1064-nm Nd:YAG laser can be used for eliminating deeper black and blue pigments and may have less incidence of causing hypopigmentation.[1-3,6,8-16] In addition to tattoo removal, the Q-switched Nd:YAG or Alexandrite lasers eradicate pigmented lesions, namely lentigines and pigmentary dyscrasia.[9]

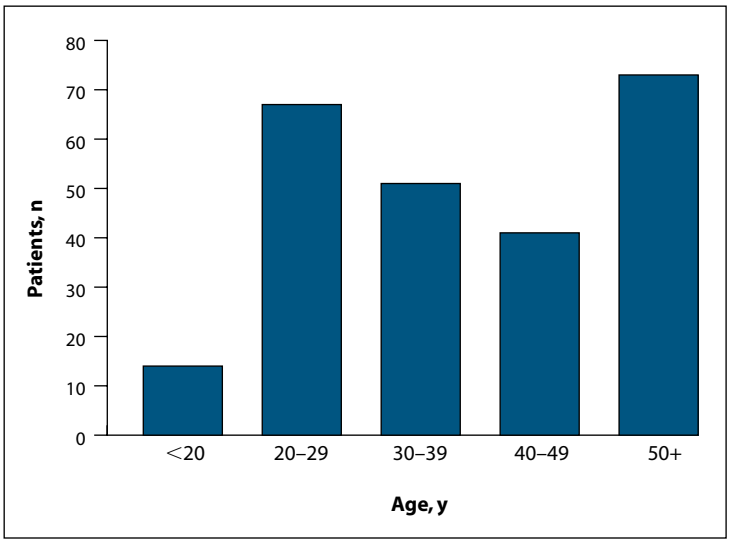

Figure 1. Age demographics of patients with tattoos.

Laser removal provides the best aesthetic result but can require multiple treatment sessions. The cost of removal depends on not only the color but the size of the tattoo. Patients can expect 6 to 8 visits, sometimes more for green or sky blue pigments.[1,2,7-10] Nearly all tattoos can be lightened, though Q-switched lasers realistically remove about half the pigmentation. In fact, some pigments have proven to be resistant to laser treatment, particularly dark green and yellow.[3,9,10] Unfortunately, having a tattoo removed is costlier than applying it. Treatment cost varies from $100 per session for a small single-color tattoo, which may be removed in 1 or 2 sessions, to $500 per session to remove larger multicolored tattoos requiring 8 or more visits. A single laser system may approach $80,000 or more. Given that multiple laser systems are needed to treat various tattoo pigments, an investment of several hundred thousand dollars may be required (Candela Corporation sales representative, oral communication, November 2005).

METHOD

Data were obtained from our private practice patient population. For 15 weeks, 2493 consecutive patients aged 18 and older were surveyed. To prevent bias, the patients completed the survey in the waiting room and were guaranteed anonymity and no future solicitations or questions. Patients were asked 9 questions, including age, sex, number of tattoos, age of patients when they got their first tattoo, if tattoos were done by a professional or amateur artist, if patients considered having tattoos removed, if patients would consider spending $1000 to have tattoos removed or would have tattoos removed if 4 or more treatments were required, and if patients believed their tattoos could be removed without scarring or pigment change. The questions were designed to determine patients' level of satisfaction with their tattoos. If patients reported dissatisfaction with their tattoos, we tried to determine if they would be willing to spend over $1000 and have 4 or more treatments to remove tattoos. We also attempted to determine if patients with tattoos believed that the needlework could be removed without scarring.

RESULTS

Of the patients responding to the survey, 1345 were women and 1148 were men. Approximately 2247 patients (90%) stated they were nontattooed; the remaining 246 patients (10%) noted that they had at least 1 tattoo (Figure 1). Roughly 219 patients (89%) had tattoos that were professionally done by cosmetic artists, while only 27 patients (11%) had tattoos that were done by amateurs. A total of 33 patients (13%) requested removal (Figure 2). Fifteen men and 18 women wanted their tattoos removed (age range, 18–84 years). There were 3 men and 10 women (≤30 years old) who desired eradication of the skin artwork they had once craved. Among patients aged 50 and younger preferring removal, there were 4 men and 6 women, with 8 men and 4 women over 50 years old wanting to remove their tattoos. Most patients had their tattoos applied at a relatively young age (<30 years old). Only 4 people desiring removal had their tattoos applied after age 30. Some 18 of 33 patients (55%) said they were willing to have 4 or more treatments to remove their tattoos; however, only 5 patients (15%) desiring removal were willing to pay over $1000 for the procedure. These 5 patients represented 2% of

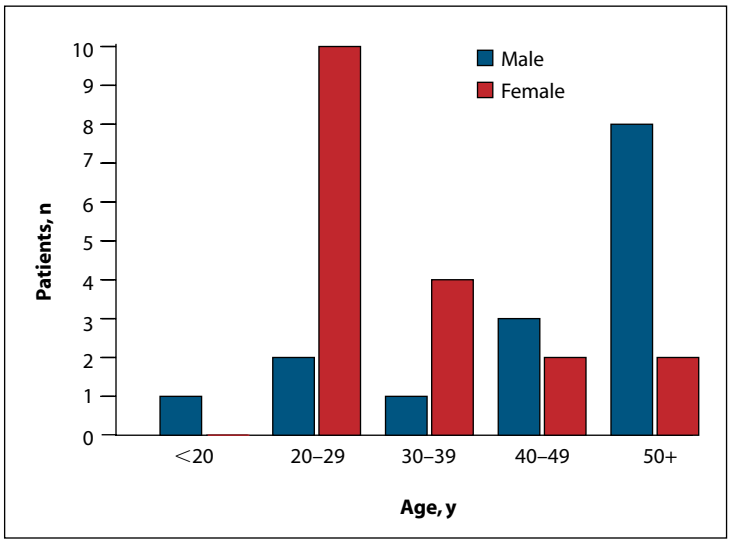

Figure 2. Age demographics of patients desiring tattoo removal.

the 248 patients with tattoos. The majority (177 patients [71%]) of all patients possessing tattoos believed that removal would leave a scar.

COMMENT

The relevance of the survey may have limits, given our demographic area and sample size. We have about 250,000 people in our patient population region. All economic groups are represented but most are middle income and employed in blue-collar fields. Their attitudes may not be representative of populations in other areas of the United States.

In our study, most patients who desired tattoo removal had their tattoos applied at a young age, usually younger than 30. In many instances, they did not consider eliminating the body art until many years later. The psychology and sociology behind getting and eventually removing tattoos are complex and ever changing.[3,6] According to a study by Armstrong et al,[3] with 105 subjects, 60% of subjects had their tattoos for 14 years or more before requesting laser removal therapy. Twenty-three subjects (22%) had their tattoos for a mean of 5 years before seeking removal; 12 subjects (11%) sought to have their tattoos removed in ≤1 year.[3] Our findings are consistent with these other data.

Increasing numbers of people are becoming tattooed, most not wanting their tattoos to be removed. In our study, 98% of patients were willing to keep their tattoos. If they desired removal, they preferred to have multiple laser sessions but not spend over $1000. In general, people would rather keep a tattoo that they do not like than have it eliminated by a laser. Age does not seem to be a factor in the desire for tattoo removal. Our survey indicated that there was an equal number of patients likely to pursue tattoo removal in the 30- to 50-year-old age group as there was in the 20- to 30-year-old age group. In the future, improving laser technology may whittle costs and improve cosmetic outcome. Current lasers have their limitations: multiple treatment sessions are required, often without totally removing the pigmentation, and scarring or skin textural changes may be adverse effects. High costs preclude most people from having a tattoo removed. Over the next decade, however, there may be an increasing demand for laser removal of tattoos, given the significant number of people in the United States who have this form of body artwork.

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