

Updated Insights From an Expanded Survey on Monopolar Radiofrequency Treatment

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INTRODUCTION

Thermage[®] FLX is an advanced, non-invasive monopolar radiofrequency (RF) device used in aesthetic dermatology to address skin laxity and signs of aging. Building on the success of earlier Thermage models, it delivers RF energy to stimulate collagen production, enhancing skin firmness and texture.^{1,2} The FLX model represents the latest advancement in the Thermage platform, offering faster treatment times, improved precision, and greater patient comfort. It uses a single RF electrode in a monopolar configuration to deliver controlled heat into the dermis, creating thermal injury that triggers the body's natural wound-healing response and collagen regeneration.³⁻⁵

Following our previous investigations,⁶⁻⁹ the 2024 survey provides updated insights into expert perceptions of Thermage FLX regarding its efficacy, complications, and usage patterns. This cross-sectional survey was conducted across eight countries in the Asia-Pacific region.

MATERIALS AND METHODS

A 29-item questionnaire on Thermage FLX was distributed to physicians across the Asia-Pacific region who had at least one year of experience using the device. Participants were recruited from attendees of the 2024 annual Thermage user meetings in their respective countries. Eligible physicians were invited to complete an online survey. All questions were multiple-choice, with the option to select multiple responses. The study was approved by the Institutional Review Board (IRB) of Incheon St. Mary's Hospital, The Catholic University of Korea (IRB number: OC25QISI0019).

A total of 204 physicians participated (90 from Korea and 114 from Taiwan, China [including Hong Kong], Thailand, Vietnam, Singapore, Malaysia, and Australia). The respondents had an average of 7.8 years (range: 1–23) of experience with Thermage and 3.2 years (range: 1–6) with Thermage FLX (Figure 1). The questionnaire addressed three main areas: (a) perceived effectiveness, (b) complications encountered, and (c) practice patterns. Compared to prior surveys, this edition included expanded questions on EyeThermage and physicians' personal use of the FLX platform.

RESULTS AND DISCUSSION

Consistent with our 2020 survey⁹, individuals in their 40s remained the most frequently identified ideal candidates for Thermage FLX using the total tip. Skin thickness, in conjunction with age-related changes (e.g., laxity, wrinkling), continued to be the key predictor of treatment response. In addition to tightening, the total tip was reported effective for improving pores (80.9%), rosacea (30.4%), and acne (28.9%) as reported in previous studies (Figure 2A).⁶⁻¹³

The 2024 survey indicated an improved non-responder rate compared to 2011,⁶ with 69.1% of physicians reporting fewer than 20% non-responders. However, 30.9% still experienced higher non-responder rates, underscoring the need to manage patient expectations, which are often heightened due to online media. Physicians emphasized the importance of counseling and suggested adjusting treatment parameters or combining Thermage with injectables to improve results.¹⁴ Notably, 75.5% reported performing both treatments on the same day, with 93.5% starting with RF (Figure 2A).

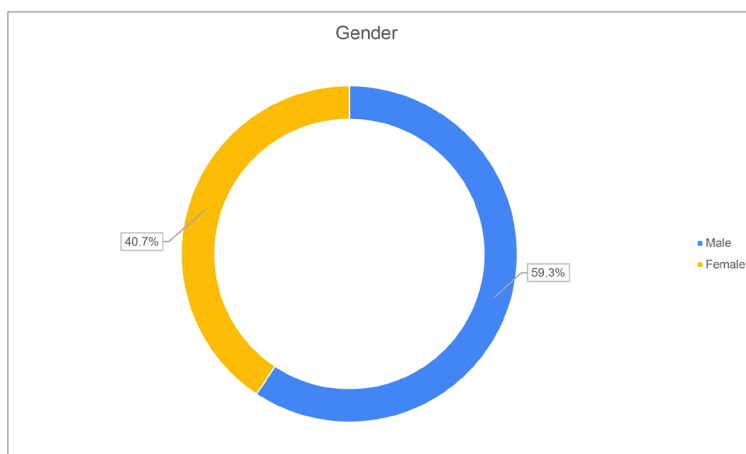
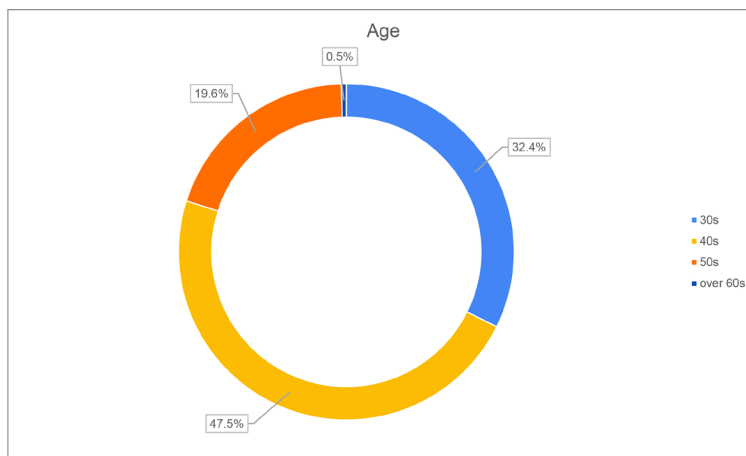
The Thermage EyeTip, a specialized tool for non-invasive eyelid rejuvenation, has become a popular choice due to its ability to tighten upper eyelids with no downtime.^{15,16} As the only treatment option for upper eyelid tightening with no downtime, EyeThermage has gained significant popularity. As with the total tip, individuals in their 40s were considered ideal candidates. Thin periorbital skin was cited as a predictor of successful outcomes. EyeThermage was frequently paired with injectables (80.6%), and in 94.6% of such cases, physicians treated the eye area first when crow's feet were present (Figure 2B).

Topical EMLA (2.5% lidocaine/2.5% prilocaine) remained the preferred anesthetic (Figure 3A), while ~30% of respondents reported using sedation. With growing concern over propofol-related risks, nitrous oxide ("laughing gas") is increasingly used as a safer alternative that maintains patient communication during treatment.¹⁴

The preferred treatment interval for the total tip was one year (67.2%), followed by 6–11 months (31.9%) (Figure 3A). The 600 REP 4 cm² and 900 REP 4 cm² tips were similarly popular

FIGURE 1. Characteristics of the 204 physicians who participated in the 2024 Thermage FLX survey.

Nationality	Participant
Korea	90
Taiwan	54
Thailand	11
Vietnam	19
Singapore	3
Malaysia	4
Australia	1
China(incl. HK)	22
SUM	204



overall (53.9% and 50.5%, respectively). However, regional preferences differed: Korean dermatologists overwhelmingly favored the 600 REP tip (97.8%), while 86% of physicians in other countries used the 900 REP tip. This may reflect differing clinical practices—Korean dermatologists personally perform treatments and adjust energy settings for precision.

Regarding Eye Thermage, 76% of respondents used both the total and eye tips in combination, 13.7% alternated, and 10.3% used only the eye tip. Yearly intervals were most common (58.3%), followed by 6–11 months (35.8%) and <6 months (3.9%). The 450 REP 0.25 cm² tip was preferred over the 225 REP version (81.7% vs 18.3%) (Figure 3B).

Compared to 2020,⁹ treatment settings were generally higher in 2024. Preferred levels were: 3–3.5 (cheeks, 56.4%), 2–2.5 (forehead, 56.4%), 1–1.5 (neck, 50%), and 3–3.5 (eyelids, 42.6%) (Figure 3C). Korean dermatologists tend to use lower energy settings compared to those in other countries. For example, for the cheeks, 56.7% of Korean dermatologists chose 2–2.5,

while 58.8% of physicians in other countries chose 3–3.5. Some even used levels above 4 for various areas, but we recommend conservative settings, especially for the neck, to minimize complications.¹⁷

The most-commonly reported complications were erythema, edema, and vesicles, followed by post-inflammatory hyperpigmentation, fat atrophy, and scarring.^{17,18} With the eye tip, additional complications included eye dryness, corneal erosion, and blurred vision (Figure 4).

Regarding physicians' self-treatment experience, 76.5% had undergone total tip treatment and 35.3% had received Eye Thermage (Figure 5A–B). The most used tips were the 900 REP 4cm² tip (outside Korea), 600 REP 4cm² tip (in Korea), and 450 REP 0.25cm² eye tip. Most self-treatments occur annually. Interestingly, 17.3% (total tip) and 38.9% (eye tip) underwent treatment without pain control.¹⁵ Despite experiencing some side effects (18.6% and 8.3%, respectively), physician satisfaction was high: 94.8% for total tip and 81.9% for eye tip.

FIGURE 2A. Perceived effectiveness of the Thermage FLX total tip.

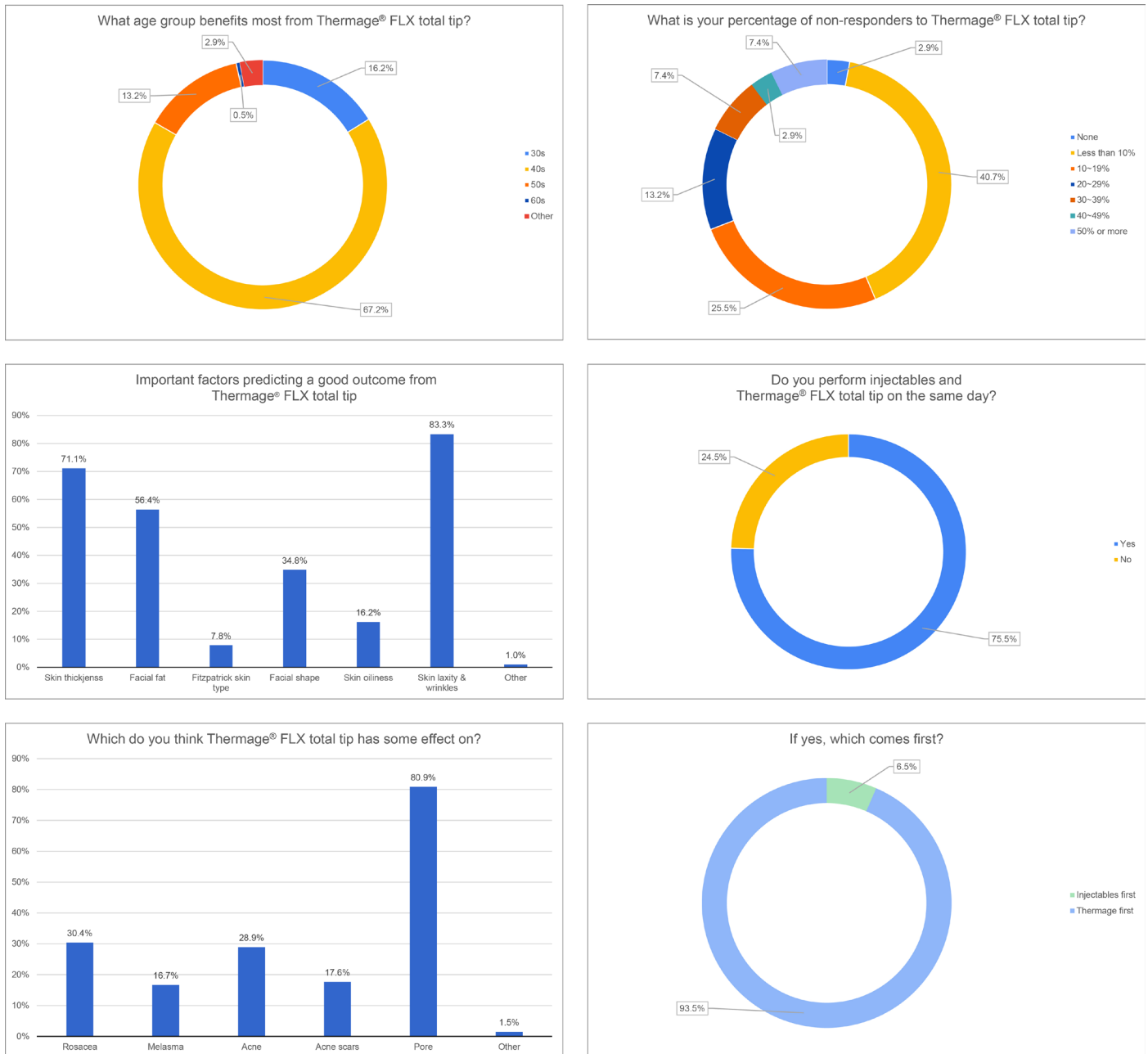


FIGURE 2B. Perceived effectiveness of Eye Thermage.

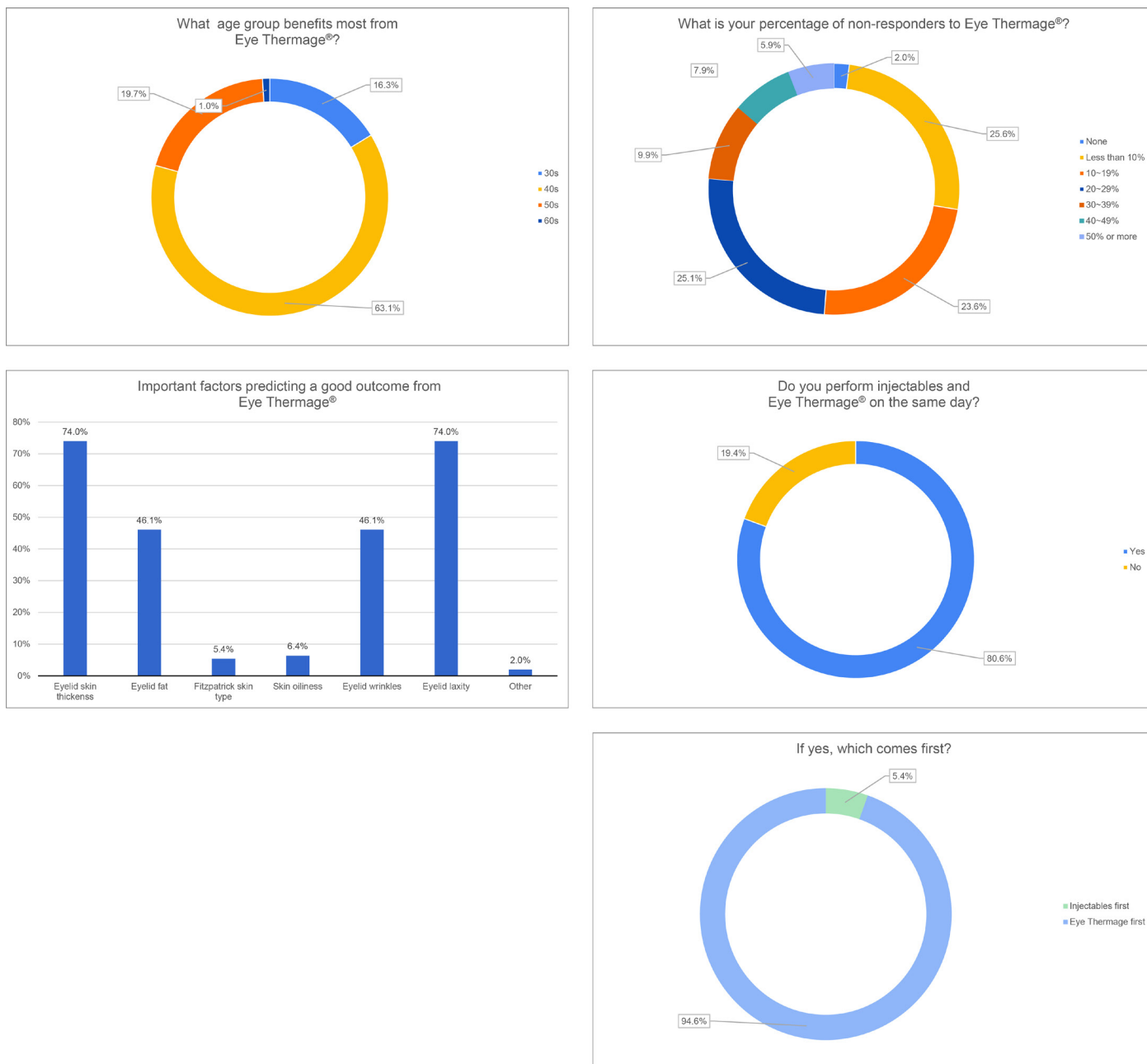


FIGURE 3A. Practice patterns of the Thermage FLX total tip.

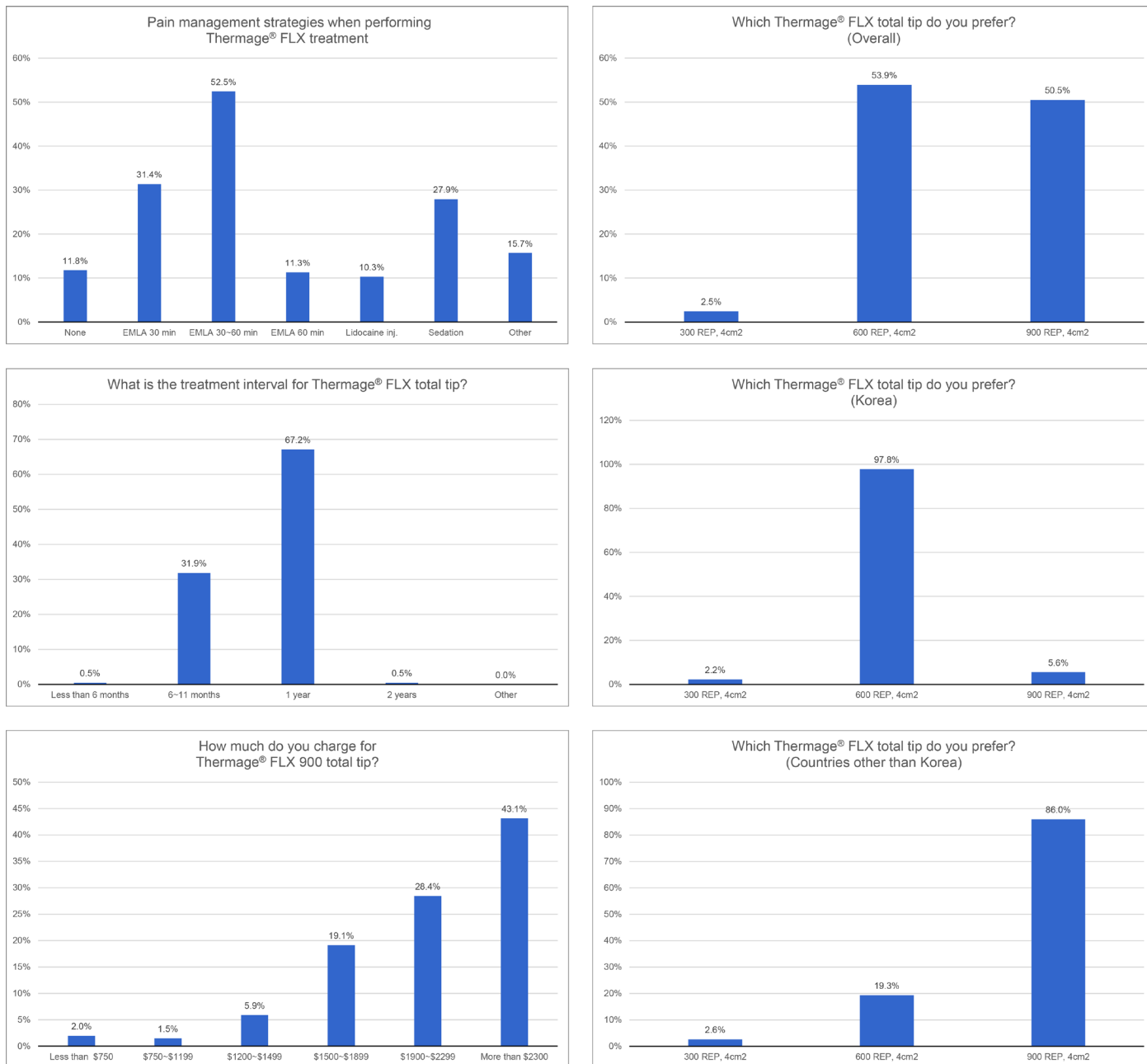


FIGURE 3B. Practice patterns of Eye Thermage.

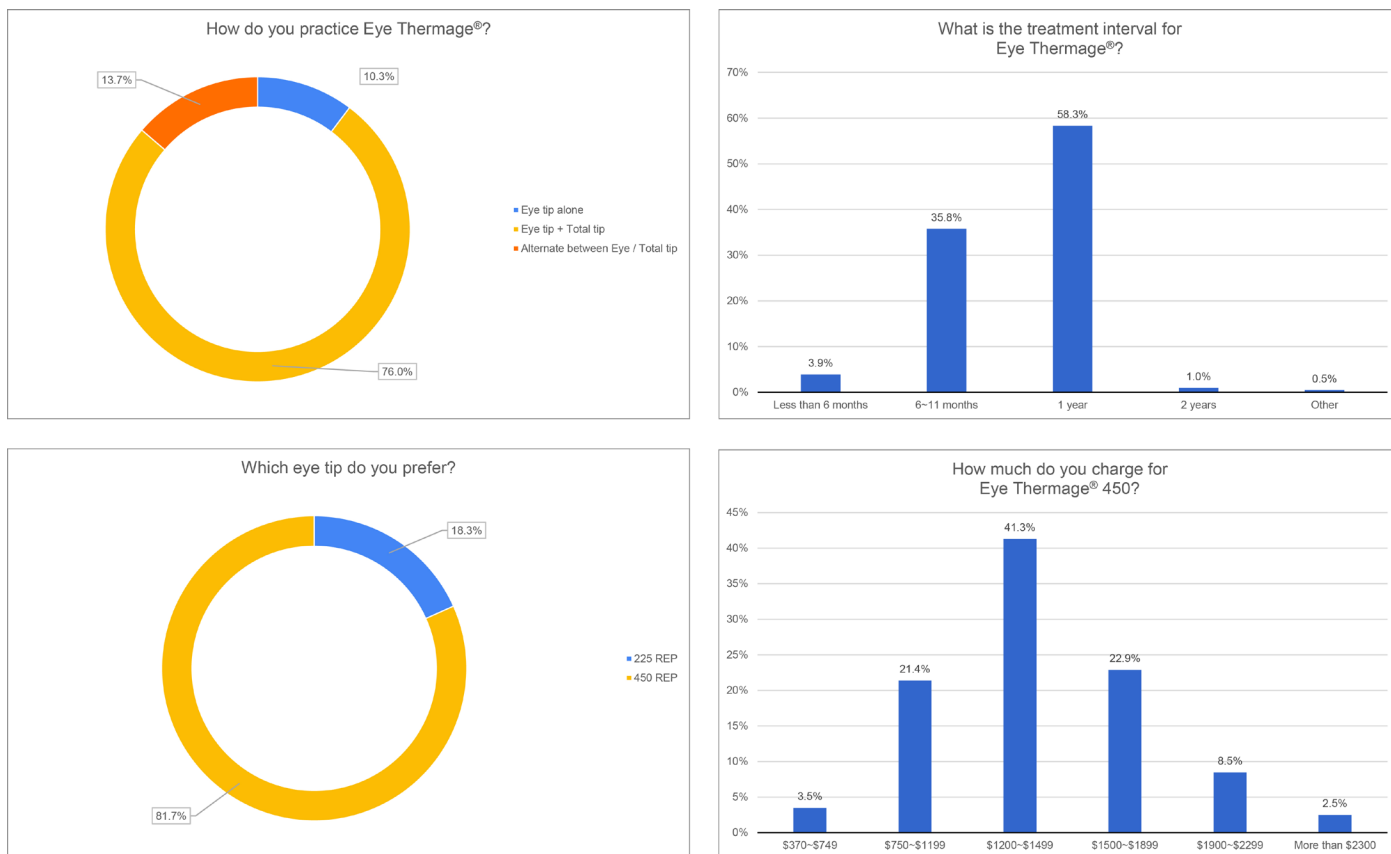


FIGURE 3C. Treatment levels used in Thermage FLX.

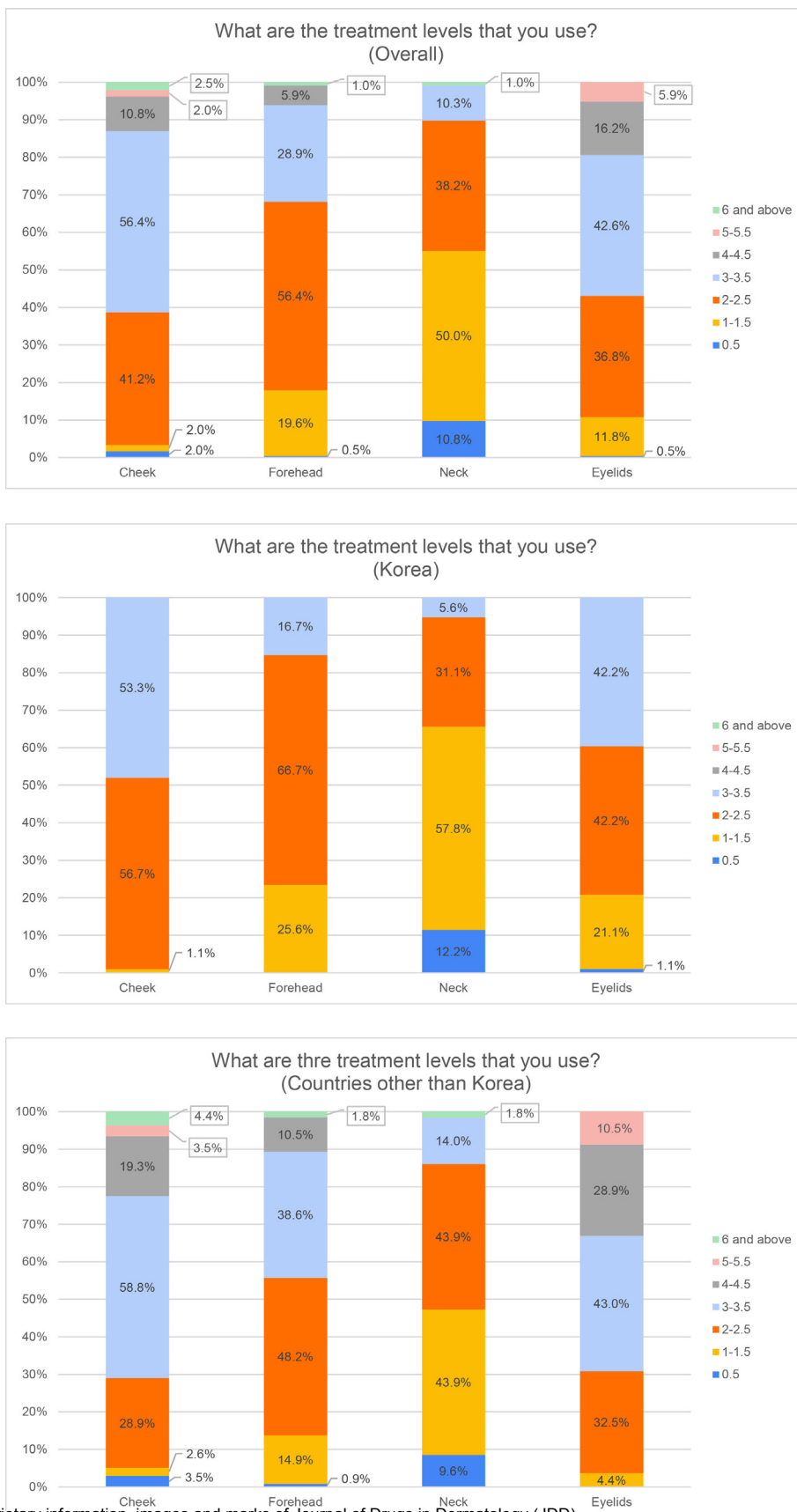


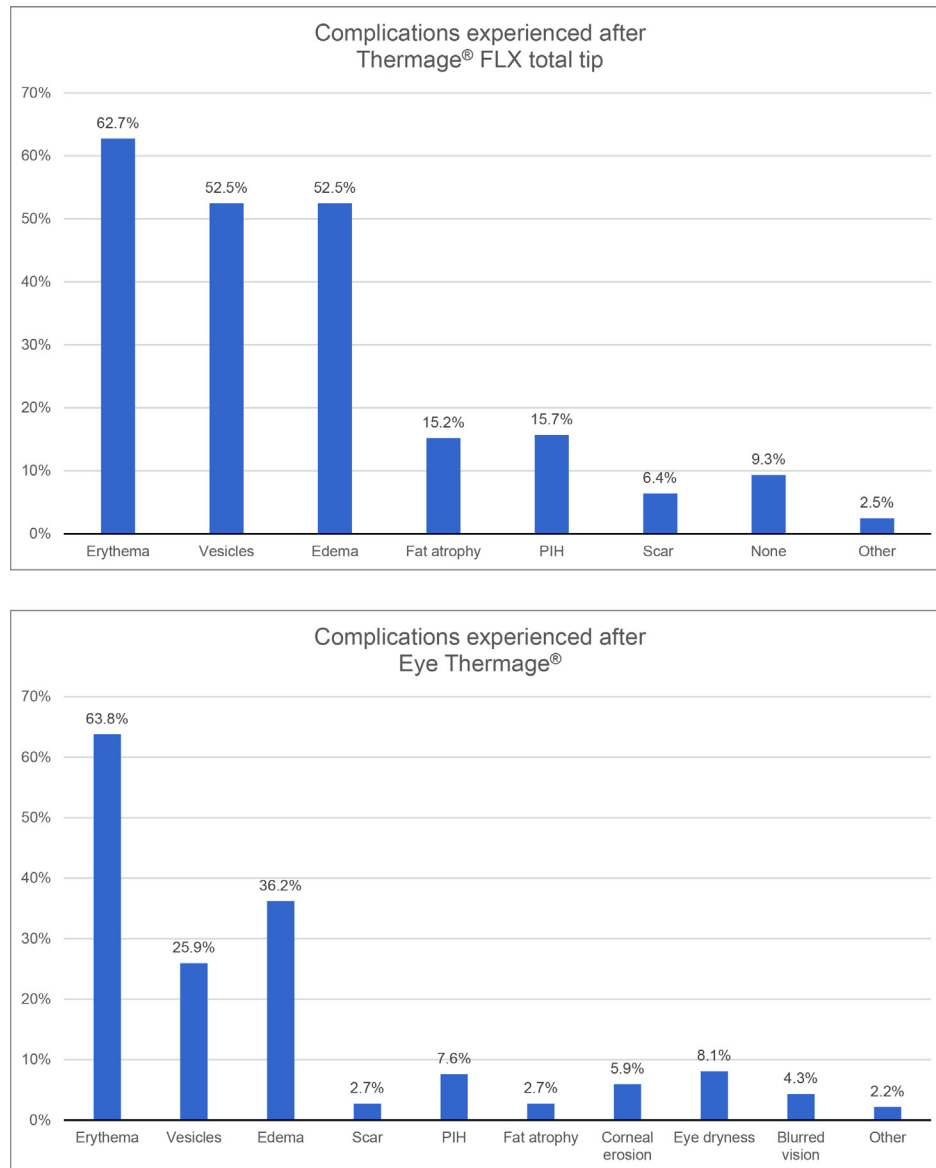
FIGURE 4. Complications experienced with Thermage FLX.

FIGURE 5A. Data regarding physicians' self-experience with the Thermage FLX total tip.



FIGURE 5B. Data regarding physicians' self-experience with Eye Thermage.



CONCLUSION

Thermage FLX represents a significant advancement in non-invasive skin rejuvenation and is widely endorsed by Asia-Pacific physicians, with high rates of satisfaction and self-experience. While results are gradual and often require annual sessions, the device is considered ideal for patients in their 40s with mild to moderate skin laxity. Combination protocols involving the total (600 REP 4 cm² tip or 900 REP 4 cm² tip) and eye (450 REP 0.25 cm² tip)—often with injectables—are common, with monopolar RF typically administered first. Serious complications are rare, and patient comfort can be effectively managed with EMLA cream. Conservative energy settings, particularly for delicate areas like the neck, are advised to reduce risks. We hope the insights from this 2024 survey support clinicians in optimizing their Thermage FLX practice.

DISCLOSURES

The authors have no conflicts of interest to disclose.

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