

Current Trends in Cataract and Refractive Surgery in Japan: 1999 Survey

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Purpose: The eighth annual survey was carried out by mail in February 2000 to investigate the current trends in cataract and refractive surgery in Japan.

Respondents: Questionnaires were sent to 930 ophthalmologist members of the Japanese Society of Cataract and Refractive Surgery. Data received from 457 (49.1%) of the recipients were cross-analyzed and compared with those from the previous surveys.

Results: In cataract surgery, 17% of respondents were doing 51 or more cases per month, 94% preferred phacoemulsification, 58% employed the self-sealing wound closure technique, and 26% used topical anesthesia for phacoemulsification. In refractive surgery, excimer laser surgery and astigmatic keratotomy attracted notably high interest, while less attention was directed toward radial keratotomy and intrastromal corneal ring. Laser in situ keratomileusis, photorefractive keratectomy, phakic intraocular lens, intrastromal corneal ring, and radial keratotomy were judged to be useful refractive surgical procedures by 69.0%, 40.0%, 24.6%, 14.2%, and 8.0% of the respondents, respectively.

Conclusion: There are trends toward more surgical procedures performed by a surgeon, shorter period of hospitalization, and increasing preference for small incision cataract surgery. Refractive surgery is not yet widely performed, but laser in situ keratomileusis is viewed as the most promising procedure. *Jpn J Ophthalmol* 2001;45:383–387 © 2001 Japanese Ophthalmological Society

Key Words: Cataract surgery, intraocular lens, Japanese Society of Cataract and Refractive Surgery, refractive surgery, survey.

Introduction

With the evolving surgical techniques and instrumentations, the cataract and refractive surgical procedures are now among the most successful and the most common in medicine. Because the numbers of both surgical procedures and surgeons are growing, a clear understanding of the current situation and future trends in these fields has become increasingly important. In the United States and European countries,^{1–18} surveys have been conducted on the procedural styles and preferences of anterior segment surgeons, giving a detailed view of the trends taking

place in those countries. Since 1992, we have conducted annual mail surveys of members of the Japanese Society of Cataract and Refractive Surgery.^{19–21} The current study represents the eighth such survey on cataract and refractive surgical practices in Japan.

Materials and Methods

Survey forms with 40 multiple-choice questions were mailed in February 2000 to 930 ophthalmologist members of the Japanese Society of Cataract and Refractive Surgery. To maintain the confidentiality of the respondents, no name was indicated on the return envelopes and questionnaires.

Results

Replies were received from 457 (49.1%) of the recipients prior to the cutoff date of March 31, 2000. We used personal computer database programs (Ac-

Received: July 12, 2000

The authors have no commercial or proprietary interest in the products or companies described in this article.

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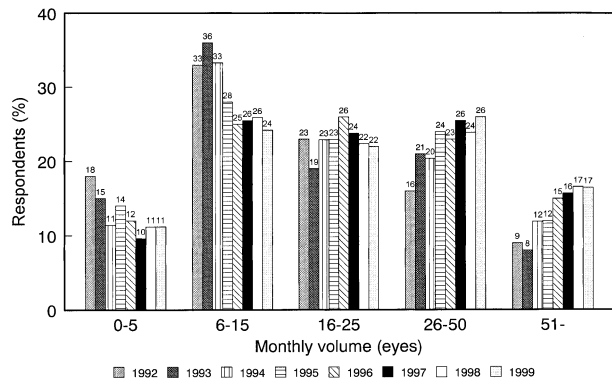


Figure 1. Cataract surgery volume per month (eyes).

cess 2000; Microsoft, Tokyo, and Statistica™ for Windows, StatSoft, Tulsa, OK, USA) for data analysis. Summaries of representative data follow.

Demographics

The majority of the respondents were in the 30-39 and 40-49 year age groups, accounting for approximately 65% of all respondents again this year. The volume profile for cataract surgery showed that 26% of the surgeons were doing 26-50 procedures, 24% doing 6-15 procedures, and 22% doing 16-25 procedures per month (Figure 1). The average number of cataract surgery procedures per surgeon per month was calculated to be 31.1, compared to 20.1 (1993), 25.2 (1994), 26.6 (1995), and 28.7 (1996), 30.1 (1997), and 29.7 (1998). Surgeons doing 75 or more cases monthly constituted 6.1%, 7.3%, 7.1%, 7.5%, and 8.6% of the respondents in 1995, 1996, 1997, 1998, and 1999, respectively.

Hospitalization

Most of the cataract operations were carried out on hospitalized patients. Twenty-nine percent of surgeons replied that they hospitalized their patients for 3 to 4 days, 25% said for 0 day, and 17% for 5 to 6 days (Figure 2). The proportion of surgeons who hospitalize patients for longer than 1 week decreased from 46% (1992), 33% (1993), 26% (1994), 23% (1995), 20% (1996), 18% (1997), 13% (1998) to 9% this year. Twenty-five percent of the doctors said that the majority of their patients had outpatient surgery. The average period of hospitalization was 3.1 days in 1999, compared to 5.6 days in 1993, 5.1 days in 1994, 4.8 days in 1995, 4.1 days in 1996, 4.0 days in 1997, and 3.9 days in 1998. The percentage of surgeons who perform outpatient cataract procedures increased from 24% (1992), 26% (1993), 41%

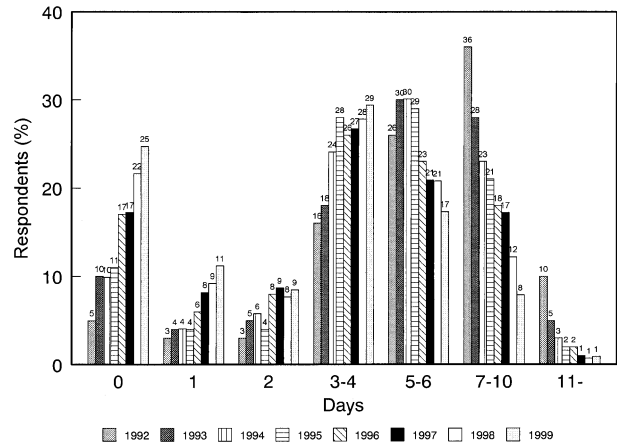


Figure 2. Duration of hospitalization for cataract surgery.

(1994), 44% (1995), 59% (1996), 64% (1997), and 68% (1998) to 72% this year.

Anesthesia

The percentage of surgeons using retrobulbar anesthesia has decreased from previous years, while Tenon anesthesia and topical anesthesia have gained in popularity (Figure 3). Intracameral anesthesia was performed by 4% of the respondents.

Cataract Extraction

Preferred techniques of cataract extraction are shown in Figure 4. Phacoemulsification and aspiration (PEA) with nucleus-dividing technique grew in popularity again this year. When asked about the percentage of patients treated using PEA, 81% of surgeons replied that they used it in 95% or more of

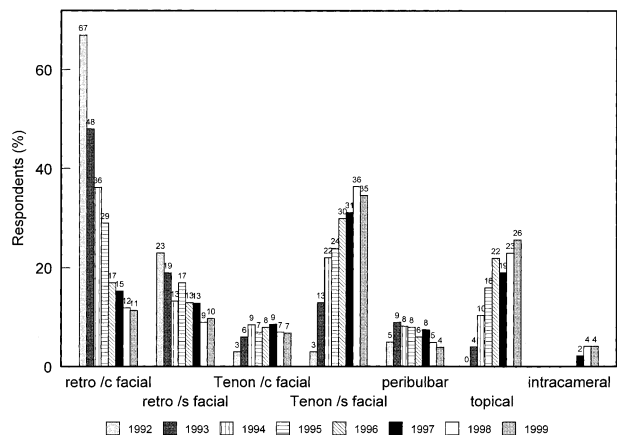


Figure 3. Preferred anesthesia. /c: cum, /s: sine.

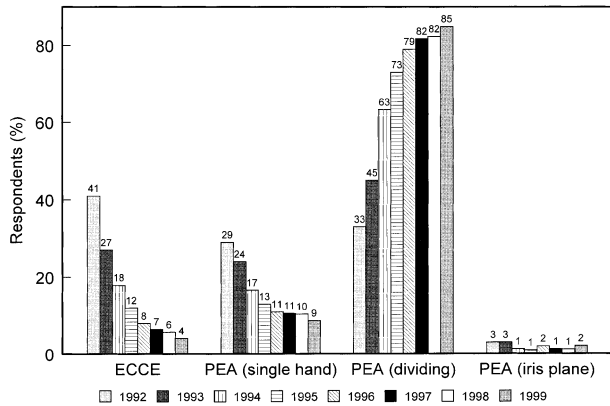


Figure 4. Preferred technique of cataract extraction. PEA: phacoemulsification and aspiration, ECCE: extracapsular cataract extraction.

cases, a sharp increase during the last 8 years (Figure 5). Only 3% never used PEA. The data indicate that 94% of surgeons use PEA for more than half of their patients, and 6% use extracapsular cataract extraction (ECCE) for more than half of their cases. The rate of surgeons who prefer PEA increased from 59% in 1992, 71% in 1993, 80% in 1994, 83% in 1995, 90% in 1996, 92% in 1997, to 93% in 1998 to 94% this year.

As for the surface contour of wounds in PEA, 12% made the incision parallel to the limbus, 54% made it tangential to the limbus, 14% made a frown incision, and 17% made a clear corneal incision (Figure 6). The preferred size of incisions in PEA varied. The most frequently cited sizes were, in descending order, 3.5 mm (22%), 4.0 mm (19%), 5.5 mm (17%), 3.0 mm (13%), and 6.0 mm (11%).

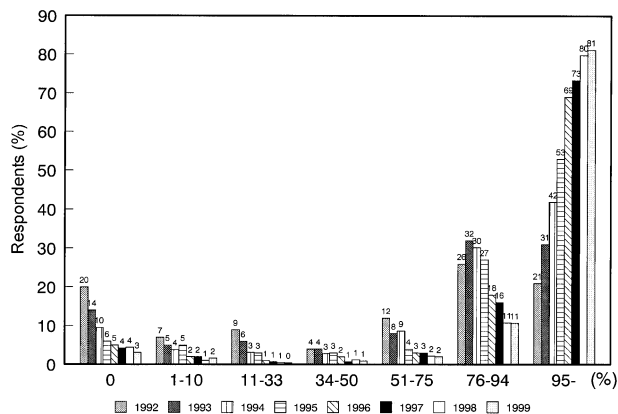


Figure 5. Percentage of phacoemulsification use.

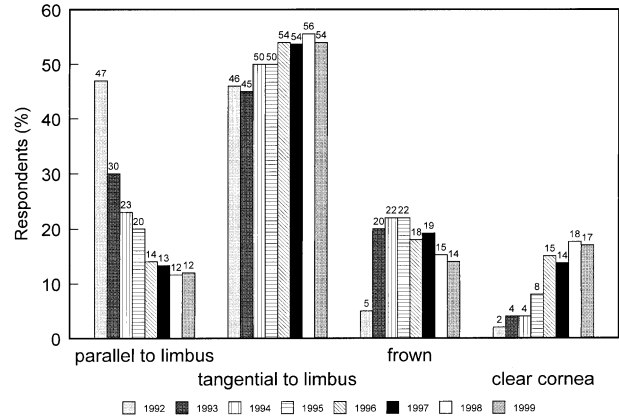


Figure 6. Preferred surface contour of wound.

Self-sealing wound construction was the main wound closure technique in PEA for 58% of the ophthalmologists in 1999, showing a gradual annual increase since 1992 (Figure 7).

Intraocular Lenses

Respondents were asked about their preference in the size of the optics for PEA. Both 5.5-mm and 6.0-mm spherical ranked the highest (47%).

The type of intraocular lenses currently being used for small incision cataract surgery included acrylic foldable intraocular lens (65%), silicone intraocular lens (44%), small spherical polymethylmethacrylate (PMMA) intraocular lens (21%), and hydrogel intraocular lens (12%). Thirteen percent of surgeons did not use any small incision intraocular lenses (Figure 8). When asked what intraocular lens style or material held the most promise for small incision cat-

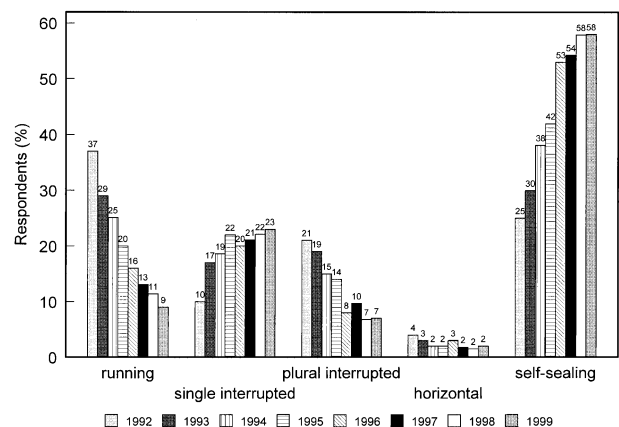


Figure 7. Wound closure technique in phacoemulsification.

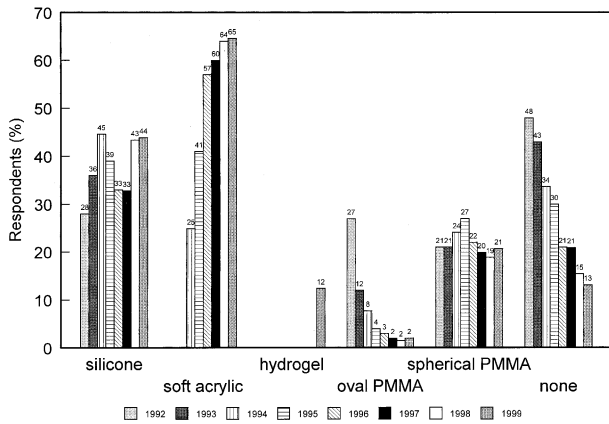


Figure 8. Small incision intraocular lenses currently used. PMMA: polymethylmethacrylate.

aract surgery, 45% chose acrylic foldable, 12% hydrogel foldable, 10% silicone foldable, and 3% small spherical optic PMMA (Figure 9).

Complications

Eighteen percent of respondents reported displacement of the nucleus into the vitreous during the past year. The occurrence rate was 0.63 cases per 1000 cataract surgeries, which decreased from 1.12 cases in 1995, 0.87 cases in 1996, 1.99 cases in 1997, and 0.73 cases in 1998. For cases in which the nucleus was displaced into the vitreous, the dropped nucleus was removed intraoperatively in 57% of the cases, and postoperatively in 43%.

Eighteen percent of respondents had experienced endophthalmitis after cataract surgery during the past year. The occurrence rate was 0.44 cases per 1000 cataract surgeries, compared to 0.45 cases in 1994, 0.59 cases in 1996, and 0.44 cases in 1998.

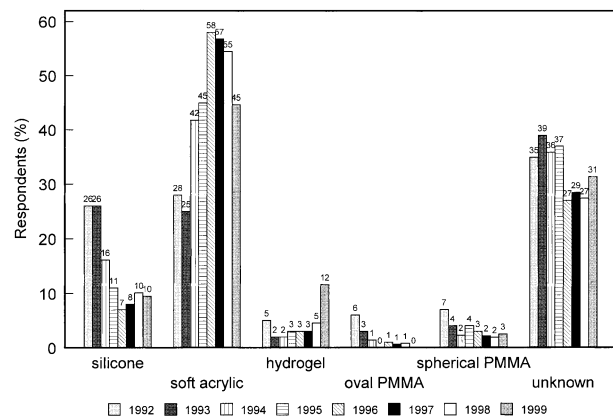


Figure 9. Most promising intraocular lens for small incision cataract surgery. PMMA: polymethylmethacrylate.

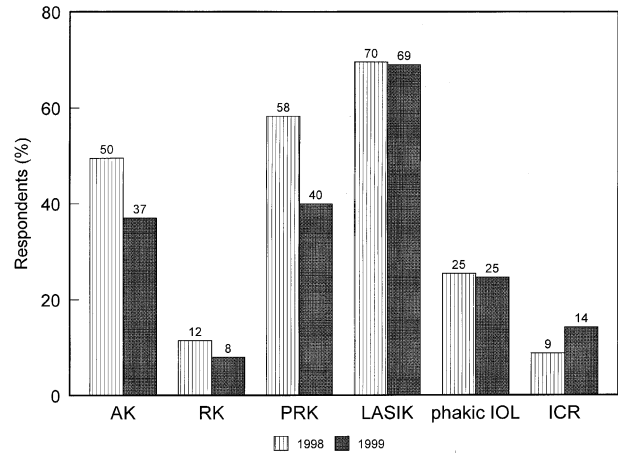


Figure 10. Usefulness of refractive surgery for respondents' future practice. AK: astigmatic keratotomy, RK: radial keratotomy, PRK: photorefractive keratectomy, LASIK: laser in situ keratomileusis, phakic IOL: phakic intraocular lens, ICR: intrastromal corneal ring.

Ten cases of expulsive hemorrhage were reported. Among them, 2 cases developed at the time of intracapsular cataract extraction, 2 cases at ECCE, 4 cases at PEA, and 2 cases in other situations. The occurrence rate was 0.059 cases per 1000 cataract surgeries.

Refractive Surgery

The respondents were asked which refractive surgical procedures they were currently performing. The limbal relaxing incision was performed by 12% of the respondents, astigmatic keratotomy by 21%, radial keratotomy by 2%, photorefractive keratectomy by 6%, and laser in situ keratomileusis by 6%. Respondents' views on these procedures in addition to phakic intraocular lens and intrastromal corneal ring are shown in Figure 10. Laser in situ keratomileusis, photorefractive keratectomy, and astigmatic keratotomy attracted notably high interest, while less attention was directed toward radial keratotomy and intrastromal corneal ring.

Figure 11 shows the responses to the question of whether they would undergo refractive surgery themselves and, if so, which procedure.

Discussion

Because the respondents in this survey were members of the Japanese Society of Cataract and Refractive Surgery, results may not exactly reflect the opinions of all Japanese ophthalmologists. The sampling population might have represented a group of oph-

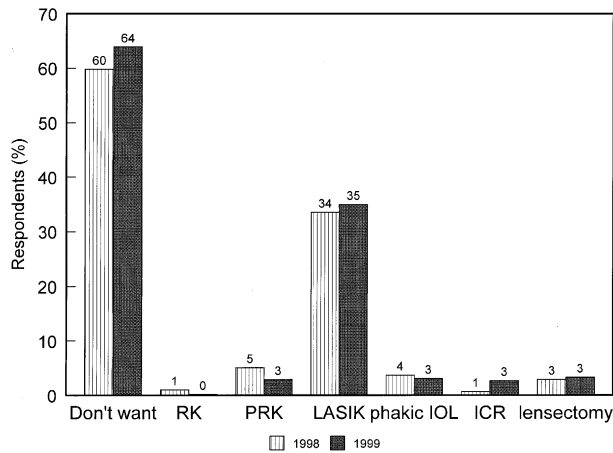


Figure 11. Percentage of respondents who would undergo various refractive procedures themselves. RK: radial keratotomy, PRK: photorefractive keratectomy, LASIK: laser in situ keratomileusis, phakic IOL: phakic intraocular lens, ICR: intrastromal corneal ring.

thalmologists who are more active in the field of cataract and refractive surgery. Because of the anonymous nature of the survey, it is not possible to trace the ophthalmologists who did not return the survey to see whether their replies would differ significantly from the responses of those who returned it.

This survey series, however, has covered a similar group of surgeons,¹⁹⁻²¹ and thus we believe that the data do describe the trend and direction of cataract/refractive surgery in this country. A longer term, continuing study, similar to others,^{7,15} would further define the direction of our profession and contribute to the quality of medical services that future patients will receive.

The authors express their appreciation to the hundreds of surgeons who responded so comprehensively to the request for information. This work was supported by the grant from Japanese Society of Cataract and Refractive Surgery. This paper was originally published in Japanese in *Intraocular Lens and Refractive Surgery* 2000;14:380-389. It appears here in a modified form with the permission of *Intraocular Lens and Refractive Surgery*, after peer review and editing for the *Japanese Journal of Ophthalmology*.

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