



Brief Communication

Ophthalmic plastic and orbital surgery in Taiwan[☆]

Chi-Hsin Hsu^{a,b}, I-Chan Lin^{a,b}, Yun-Dun Shen^{a,b}, Wen-Ming Hsu^{a,b,*}

^aDepartment of Ophthalmology, Taipei Medical University—Shuang Ho Hospital, New Taipei City, Taiwan, ROC

^bDepartment of Ophthalmology, College of Medicine, School of Medicine, Taipei Medical University, Taipei, Taiwan, ROC

Received December 17, 2012; accepted May 29, 2013

Abstract

We describe in this paper the current status of ophthalmic plastic and orbital surgery in Taiwan. Data were collected from the Bureau of National Health Insurance of Taiwan, the Bulletin of the Taiwan Ophthalmic Plastic and Reconstructive Society, and the *Statistics Yearbook of Practicing Physicians and Health Care Organizations in Taiwan* by the Taiwan Medical Association. We ascertained that 94 ophthalmologists were oculoplastic surgeons and accounted for 5.8% of 1621 ophthalmologists in Taiwan. They had their fellowship training abroad (most ophthalmologists trained in the United States of America) or in Taiwan. All ophthalmologists were well trained and capable of performing major oculoplastic surgeries. The payment rates by our National Health Insurance for oculoplastic and orbital surgeries are relatively low, compared to Medicare payments in the United States. Ophthalmologists should promote the concept that oculoplastic surgeons specialize in periorbital plastic and aesthetic surgeries. However, general ophthalmologists should receive more educational courses on oculoplastic and cosmetic surgery.

Copyright © 2014 Elsevier Taiwan LLC and the Chinese Medical Association. All rights reserved.

Keywords: manpower; operation fee; ophthalmic plastic surgery; orbital surgery; Taiwan

1. Introduction

Taiwan is a medium-sized island of 36,000 square kilometers. In 2011, its population was 23.1 million people. More than 9.8% of its total population is older than 65 years, which meets the criteria for an aging society as defined by the World Health Organization. In 2010, the average life expectancy in Taiwan was 78.6 years (male, 76.2 years; female, 82.8 years).

[☆] Note: Part of the contents were presented in a symposium, *Current and Future of Oculoplastic and Orbital Surgery*, at the first National Meeting of Oculoplastic and Orbital Surgery, which was held on May 11–13, 2012 and organized by the Oculoplastic Branch Society, Ophthalmological Society of Chinese Medical Society in Shanghai, China.

Conflicts of interest: The authors declare that there are no conflicts of interest related to the subject matter or materials discussed in this article.

* Corresponding author. Dr. Wen-Ming Hsu, Department of Ophthalmology, Taipei Medical University—Shuang Ho Hospital, 291, Zhong Zheng Road, Zhonghe District, New Taipei City 235, Taiwan, ROC.

E-mail address: wmhsu@tmu.edu.tw (W.-M. Hsu).

This was comparable to the life expectancy in many developed countries. In 1995, the National Health Insurance program in Taiwan was established; by the end of 2009, it covered 23 million beneficiaries (99.6% of the population).¹ During this period, Taiwan has demonstrated that it has adequate medical resources and manpower. With the increase in the gross domestic product, the demand for plastic and cosmetic surgeries by Taiwanese inhabitants has also increased. Many plastic and cosmetic surgeries focus on the eyes and face. The purpose of this article is to report the current status of ophthalmic plastic and orbital surgery in Taiwan.

2. Methods

The data were collected from opened information of the BNHI of Taiwan,¹ the *Statistics Yearbook of Practicing Physicians and Health Care Organizations in Taiwan (2002–2012)*,² the meeting materials of the Taiwan Ophthalmic Plastic and Reconstructive Society,³ and the

Centers for Medicare and Medicaid Service, Baltimore, MD, USA.⁴

3. Results

3.1. Manpower involving ophthalmic plastic and orbital surgery in Taiwan

In 2010, there were 1621 ophthalmologists in Taiwan serving a population of 23.1 million people.² Therefore, there were 7.09 ophthalmologists for every 100,000 inhabitants or one ophthalmologist per 14,300 inhabitants. With these figures, any question of adequate manpower seems superfluous. Among the ophthalmologists, 92 (5.6%) of 1621 ophthalmologists were oculoplastic surgeons. Approximately one-third of the 92 surgeons underwent their subspecialty (i.e., ophthalmic plastic and orbital surgery) training program in the United States [Manhattan Ear and Eye Hospital (New York, NY); New York Eye and Ear Institute (New York, NY), University of California—Los Angeles (Los Angeles, CA); University of California—Davis (Davis, CA); University of California—San Francisco (San Francisco, CA); University of Southern California (Los Angeles, CA); Duke University (Durham, NC); University of Utah (Salt Lake City, UT); University of Iowa (Iowa City, IA); Massachusetts Eye and Ear Infirmary (Boston, MA); Wills Eye Hospital (Philadelphia, PA); Wilmer Eye Institute (Baltimore, MD); Bascom Palmer Eye Institute (Miami, FL)]; in Canada [University of British Columbia (Vancouver, BC)]; in England [Moorfields Eye Hospital (London, England)]; and in Japan and Korea. The other two-thirds underwent their subspecialty training in medical centers throughout Taiwan.^{3,5}

Besides ophthalmologists, other physicians may also be involved in ophthalmic plastic and cosmetic surgery. Plastic surgeons are the predominant group among these physicians, although dermatologists, oral surgeons, otolaryngologists, family medicine doctors, and gynecologists have also performed many aesthetic surgeries. Furthermore, approximately 20,000 nurses and technicians assist in these plastic and cosmetic operations.

3.2. Taiwan Society of Ophthalmic Plastic and Reconstructive Surgery

In March 2007, the Taiwan Society of Ophthalmic Plastic and Reconstructive Surgery was founded as a branch society of the Taiwan Academy of Ophthalmology. The founding president of this society was Professor Wen-Ming Hsu. The number of society members has increased from the initial 46 individuals in 2007 to 92 individuals in 2011. The society provides continuing educational courses such as symposium and live surgery demonstration for residents and practicing ophthalmologists. Members of this society have many outstanding clinical and academic achievements. For example, from 2001 to 2010, the Taiwan Society of Ophthalmic Plastic and Reconstructive Surgery members published 190 academic papers (42 articles in science

citation index (SCI) journals and 148 articles in non-SCI journals) in the field of ophthalmic plastic and reconstructive surgery.³

3.3. Major ophthalmic plastic and orbital surgeries in Taiwan

Entropion correction was the most common oculoplastic surgery performed in Taiwan. Table 1 lists the average number of major ophthalmic plastic and orbital surgeries performed annually. The data were collected from the BNHI of Taiwan.¹

3.4. Aesthetic eyelid surgery in Taiwan

The exact number of aesthetic eyelid surgery cannot be easily documented. However, the estimated number of upper blepharoplasty procedures performed in Taiwan is approximately 60,000–80,000 procedures per year, and the number of lower blepharoplasty is approximately 40,000–50,000 procedures per year. Plastic surgeons perform most aesthetic eyelid surgeries in >60% of the patients, whereas ophthalmologists perform <20% of these surgeries. Physicians from other fields such as dermatologists, family doctors, and gynecologists account for the remaining 20%.⁵

According to a survey in a daily magazine (*Apple Daily*, August 10, 2010 issue),⁶ botulinum toxin injection is the most common cosmetic procedure (32.7%) and hyaluronic acid injection is the second most common procedure (20.1%) performed in Taiwan.⁶ In periorbital aesthetic procedures, there are approximately 400,000 botulinum toxin injections per year and 160,000 hyaluronic acid injections per year. Among these injection procedures, plastic surgeons perform approximately 40% of these procedures, whereas ophthalmologists perform approximately 30% of these procedures. Doctors from other fields account for the remaining 30%.⁵

Table 1

Major oculoplastic operations performed annually by ophthalmologists or by other surgeons.

Major operation	Average number of operations per year
Entropion correction	9800
Levator muscle/aponeurosis operation	5600
Frontalis sling for ptosis	280
Excision of benign lid tumor	6200
Excision of malignant lid tumor	80
Dacryocystorhinostomy	280
Conjunctivo-DCR	30
Dacryocystoplasty	400
Orbital tumor removal	120
Orbital floor repair	150

DCR = dacryocystorhinostomy.

Note. From Wen-Ming Hsu, *Status of oculoplastic surgery in Taiwan* from a paper presented at the Inaugural Scientific Meeting of the Taiwan Society of Ophthalmic Plastic and Reconstructive Surgery, held on March 31–April 1, 2007 in Taipei, Taiwan (sponsored by the Copyright holder: Taiwan Academy of Ophthalmology, 2007).

3.5. Operation fee for ophthalmic plastic and orbital surgery

We have listed the difference between the NHI of Taiwan¹ and the Medicare program in the United States⁴ in the operation fee for some ocular surgeries (Table 2). As the data show, the operation fee for ophthalmic plastic and orbital surgery is relatively low, compared to the payment for intraocular procedures such as cataract surgery, penetrating keratoplasty, and trabeculectomy. The payment for levator muscle resection is \$5820 new Taiwan dollars (NTD), which is nearly two-thirds of the payment for cataract surgery (\$9000 NTD).

4. Discussion

Many physicians are interested in the field of cosmetic surgery, especially in cosmetic eyelid surgery and aesthetic procedures. The manpower of medical professionals available to perform ophthalmic plastic and aesthetic surgery in Taiwan is more than adequate with an available surplus. Because of the high surgical volume maintained by physicians in other fields, the relative number of aesthetic eyelid surgeries performed by ophthalmologists is low. As we noted

previously, the payment for levator muscle resection in Taiwan is \$5820 NTD, which is nearly two-thirds the payment expected for cataract surgery. In addition, the surgical fee is even lower for ophthalmic surgeries in Taiwan, compared to fees paid through Medicare for a similar procedure in the United States. The operation fee for levator muscle resection was nearly one-third the operation fee in the United States. In addition, the operation fee for cataract surgery and levator muscle resection is nearly the same as in the United States. The relatively low payment for ophthalmic plastic surgeries in Taiwan should be considered an important issue that hinders ophthalmologists from performing ophthalmic plastic surgeries.

In the future, ophthalmologists should pay more attention to aesthetic surgeries and be encouraged to perform periorbital aesthetic procedures, in addition to their routine functional procedures. Ophthalmologists should promote the concept that an “eye doctor” is the first choice for patients who look for periorbital plastic and aesthetic surgeries. For further development of ophthalmic and orbital surgery, the Taiwan Society of Ophthalmic Plastic and Reconstructive Surgery should educate and encourage ophthalmologists to perform more cosmetic surgeries and aesthetic procedures. In addition to traditional eyelid surgeries and lacrimal and orbital surgeries, it is mandatory to learn more about newer techniques such as dacryocystoplasty, endoscopic dacryocystorhinostomy, and orbital tumor chemotherapy.

In conclusion, the manpower of ophthalmic plastic surgery in Taiwan is sufficient with surplus levels. The training of ophthalmic plastic surgeons is well documented, highly appreciated, and generally recognized. In Taiwan, the operation fees for ophthalmic plastic and reconstructive surgeries are relatively low. Competition and conflicts of interest among ophthalmologists, plastic surgeons, dermatologists, and other surgeons is an issue. Educational courses on ophthalmic plastic, reconstructive, and cosmetic surgery will provide surgeons the opportunity to attain “the stream of plastic and aesthetic surgery”.

Acknowledgments

We thank the Bureau of National Health Insurance (Taipei, Taiwan) for their data. The interpretation in this paper does not represent the views of the Bureau of National Health Insurance. The study was supported partially by grants from the Taipei Medical University (Taipei, Taiwan; 97TMC-018) and from the Wan Fang Hospital (Taipei City, Taiwan) (97TMU-WFH-11).

References

1. Bureau of National Health Insurance. The National Health Insurance statistics and survey [in Chinese]. Taipei, Taiwan, Executive Yuan, R.O.C.: Bureau of National Health Insurance Department of Health. Can be accessed at: <http://www.nhi.gov.tw>. [accessed 09.12.12] [in Chinese].
2. Taiwan Medical Association. *Statistics yearbook of practicing physicians and health care organizations in Taiwan (2002–2012)*. Taipei: Taiwan Medical Association; 2012.

Table 2

Operation fees for ocular operations showing a comparison between the National Health Insurance of Taiwan and the Medicare program of the United States.

Ocular operation	Operation fee	
	NHI, Taiwan ^a NTD (USD)	Medicare, United States ^{b,f} USD
Cataract surgery	9000 (304)	700–800
Penetrating keratoplasty	12,390 (419)	1100–1200
Trabeculectomy (glaucoma)	6939 (234)	1000–1200
Ptosis (levator resection/ advancement)	5820 (197)	650–800
Ptosis (frontalis sling)	5449 (184)	600–800
Eyelid tumor (removal)	1651 (56)	200–300
(with reconstruction)	6898 (233)	800–1000
Entropion (eyelid)	3324 (112)	300–450
Ectropion	4070 (138)	350–400
Dacryocystorhinostomy	7760 (262)	660–750
Conjunctivo-DCR	8240 (278)	700–800
Orbitotomy (tumor removal, lateral)	13,109 (443)	1500–1800
Blowout fracture repair	8163 (276)	900–1000
Enucleation of eyeball	6783 (229)	720–800

DCR = dacryocystorhinostomy, NTD = new Taiwan dollar; USD = United States dollar.

¹In the United States, different states and cities have different operation fees.

^a The information in this column is from *The National Health Insurance Statistics and Survey* [in Chinese] published by the Bureau of National Health Insurance Department of Health in Taipei, Taiwan, Executive Yuan, R.O.C. Copyright holder: National Health Insurance Administration Ministry of Health and Welfare, 2012.

^b The information in this column is from the *Overview of the Medicare National Physician Fee Schedule* published by the Centers of Medicare and Medicaid Service in Baltimore, MD. Copyright holder: 2013, American Medical Association.

3. Hsu WM. Status of oculoplastic surgery in Taiwan. In: Inaugural Scientific Meeting of the Taiwan Society of Ophthalmic Plastic and Reconstructive Surgery, March 31–April 1, 2007; Taipei, Taiwan, Taiwan Academy of Ophthalmology.
4. Overview of the Medicare National Physician Fee Schedule. Baltimore, MD: Centers of Medicare and Medicaid Service. Available at <http://www.cms.gov/apps/physician-fee-schedule/search/search-results.aspx?Y=0&T=4&HT=2&CT=3&H1=21395&H2=21395&M=5>, <http://www.cms.gov/apps/physician-fee-schedule/search/search-results.aspx?Y=0&T=4&HT=2&CT=3&H1=65013&H2=66170&M=5>, <http://www.cms.gov/apps/physician-fee-schedule/search/search-results.aspx?Y=0&T=4&HT=2&CT=3&H1=66984&H2=67914&M=5>, <http://www.cms.gov/apps/physician-fee-schedule/search/search-results.aspx?Y=0&T=4&HT=2&CT=3&H1=68720&H2=68720&M=5>. [accessed 23.05.14].
5. Hsu WM. Ophthalmic plastic and orbital surgery in Taiwan. In: Symposium on Current and Future of Oculoplastic and Orbital Surgery of the Chinese Medical Society–Oculoplastic Branch Society of the Chinese Ophthalmological Society, May 11–13, 2012; Shanghai, China.
6. Shen NY. Survey on the marketing of cosmetic surgery and aesthetic surgery. *Apple Daily*. Available at: <http://www.appledaily.com.tw/appledaily/archive/20100810>; 2010 [accessed 10.12.12]. [In Chinese].