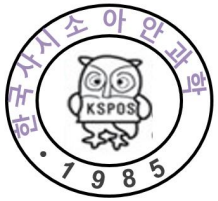
사시환자의 삶의 질



Health related quality of life in strabismus patients

2018.11.23
건국대학교 의학전문대학원 신현진
FOR 제 14회 한국사시소아안과학회 심포지엄

삶의 질_Quality of life

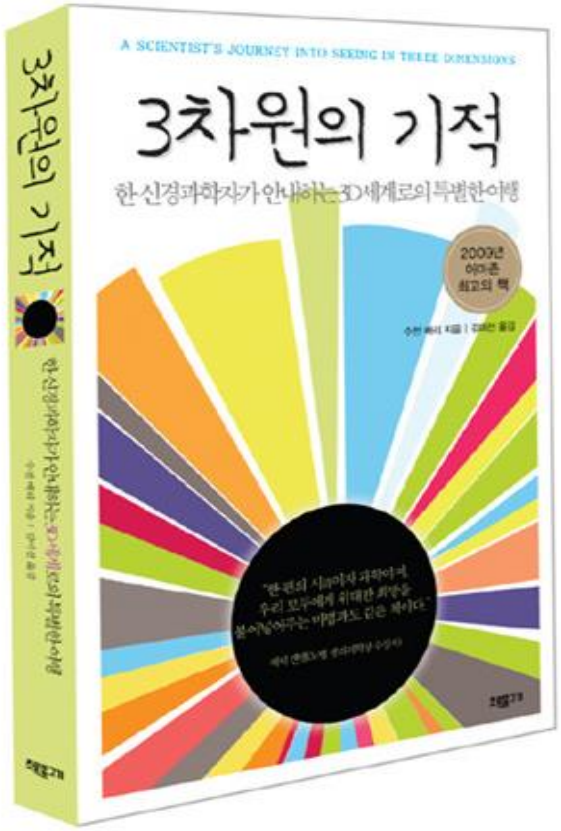
건강관련 삶의 질

Heath related quality of life (HRQOL)

Surgery	Psychosocial	Subjective
Success vs. Failure	Economic status Barrier	Satisfaction Recovery

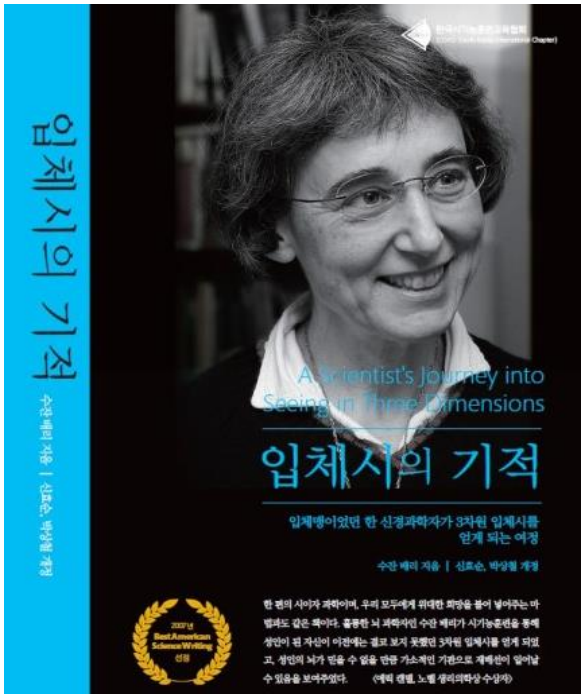
성인 . 소아 사시환자에서 삶의 질

사시수술_성공의 기준은?



3번의 사시수술을 받은
뇌과학자 수전배리가
입체맹에서 시기능 훈련으로
입체시를 얻어가는 과정

사시수술_성공의 기준은?



과연 사시각만이 수술성공의 기준일까 ?

사시수술_성공의 기준은?

- Motor success criteria ≠ Individual perception

사시수술_성공의 기준은?

Comparing Outcome Criteria Performance in Adult Strabismus Surgery

Sarah R. Hatt, DBO, David A. Leske, MS, Laura Liebermann, CO, Jonathan M. Holmes, BM, BCh

Purpose: To evaluate the performance of motor, diplopia, and health-related quality of life (HRQOL) c
when analyzing outcomes of adult strabismus surgery.
Design: Cohort study.
Participants: We studied 159 adults undergoing 171 strabismus surgeries.
Methods: All patients underwent clinical assessment preoperatively and 6 weeks postoperatively, includin
completion of Adult Strabismus-20 HRQOL questionnaires. Preoperatively, strabismus was classified as
diplopic (n = 117), nondiplopic (n = 38), or atypical diplopic (n = 16). To assess performance of motor, diplopia, and HRQOL criteria, success was defined a priori and applied separately and in combinations. For success: (1) motor criteria, <10 prism diopters by simultaneous prism cover test; (2) diplopia criteria, none or only rare in primary distance and for reading; (3) HRQOL criteria, exceeding previously reported 95% limits of agreement (LOA).
Main Outcome Measures: Surgical success rate when applying motor, diplopia, and HRQOL criteria alone and in combinations.
Results: Overall, success rates were 90% for motor criteria, 74% for diplopia criteria, and 60% for HRQOL criteria. Combining criteria, the highest success rate was for motor plus diplopia criteria (67%) and the lowest success rate was when combining motor, diplopia, and HRQOL criteria (50%).
Conclusions: Applying motor criteria alone yields the highest success rates when evaluating outcomes in adult strabismus surgery, but motor criteria do not fully represent the patient's postoperative status. Combining diplopia criteria with motor criteria provides a more clinically relevant standard for judging the success of adult strabismus surgery. For HRQOL criteria, exceeding 95% LOA at 6 weeks postoperatively seems to be a difficult hurdle to clear for some individual patients, and evaluating change in HRQOL score may be more useful in cohort studies.
Financial Disclosure(s): The authors have no proprietary or commercial interest in any of the materials discussed in this article. *Ophthalmology 2012;119:1930–1936 © 2012 by the American Academy of Ophthalmology.*

Motor, diplopia, HRQOL

- Motor success criteria ≠ HRQOL

사시수술_성공의 기준은?

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Motor success 90%

But .....

- Motor success criteria ≠ HRQOL

사시수술_성공의 기준은?

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+ diplopia, HRQOL

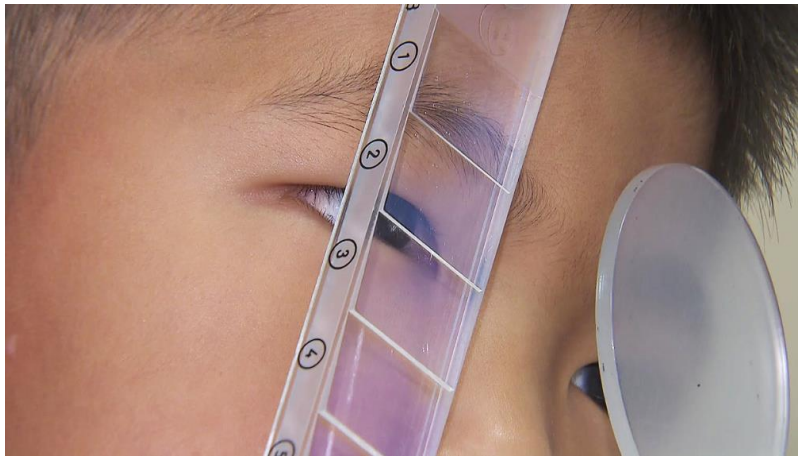
Combining criteria 50%

- Motor success criteria ≠ HRQOL

사시환자에서 삶의 질?

사시가 환자 삶의 질에 미치는 영향

보호자에게는 ?



수술 후 변화는?

치료에 있어 사회. 경제적 제약

순서 contents

Q 삶의 질은 어떻게 평가하나

평가방법

평가 설문지 ?

- AS-20 (Adult strabismus Quality of life Questionnaire)
- ASQE (The amblyopia and Strabismus Questionnaire)
- Intermittent Exotropia Questionaire (IXTG)
- NE-VFQ-25 (The 25-Item National Eye Institute Visual Function Questionnaire)
- 36-Item Short Form Health Survey (SF-36)
- Beck Depression Inventory (BDI) questionnaires

목적 및 질환에 맞게 설문지 선택

평가 설문지 ?

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목적 및 질환에 맞게 설문지 선택

Adult strabismus Quality of life Questionnaire (AS-20)

Self perception

Item No.	Item Description (Psychosocial subscale)
1	I worry about what people will think about my eyes
2	I feel that people are thinking about my eyes even when they don't say anything
3	I feel uncomfortable when people are looking at me because of my eyes
4	I wonder what people are thinking when they are looking at me because of my eye
5	People don't give me opportunities because of my eyes
6	I am self conscious about my eyes
7	People avoid looking at me because of my eyes
8	I feel inferior to others because of my eyes
9	People react differently to me because of my eyes
10	I find it hard to initiate contact with people I don't know because of my eyes
	Item Description (Function subscale)
11	I cover or close one eye to see things better
12	I avoid reading because of my eyes
13	I stop doing things because my eyes make it difficult to concentrate
14	I have problems with depth perception
15	My eyes feel strained
16	I have problems reading because of my eye condition
17	I feel stressed because of my eyes
18	I worry about my eyes
19	I can't enjoy my hobbies because of my eyes
20	I need to take frequent breaks when reading because of my eyes

Response categories of items 1–20 include: never, rarely, sometimes, often, always

*Formatted questionnaire available for download at www.pedig.net

내 눈에 대해서 다른 사람이 어떻게 생각할지 걱정될 때가 있다.

Adult strabismus Quality of life Questionnaire (AS-20)

Interaction

Self perception

Item No.	Item Description (Psychosocial subscale)
1	I worry about what people will think about my eyes
2	I feel that people are thinking about my eyes even when they don't say anything
3	I feel uncomfortable when people are looking at me because of my eyes
4	I wonder what people are thinking when they are looking at me because of my eye
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사람들은 내 눈 때문에 나를 쳐다보는 것을 피한다.

Adult strabismus Quality of life Questionnaire (AS-20)

Self perception

Interaction

Item No.	Item Description (Psychosocial subscale)
1	I worry about what people will think about my eyes
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내 눈 상태 때문에 독서에 어려움을 겪는다.

Reading

Adult strabismus Quality of life Questionnaire (AS-20)

Self perception

Interaction

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General quality of my life

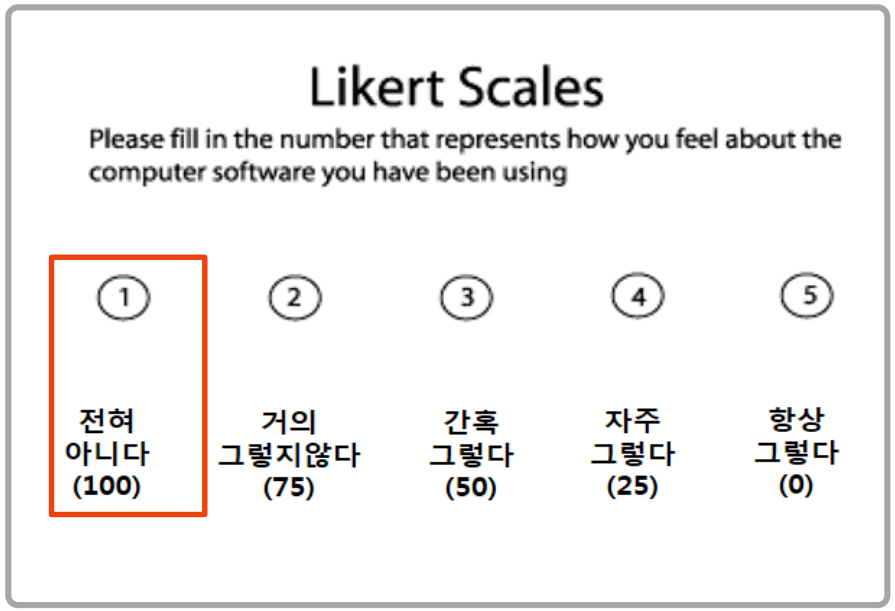
내 눈 때문에 취미생활을 즐길 수 없다.

Reading

Adult strabismus Quality of life Questionnaire (AS-20)

Self perception

Interactior



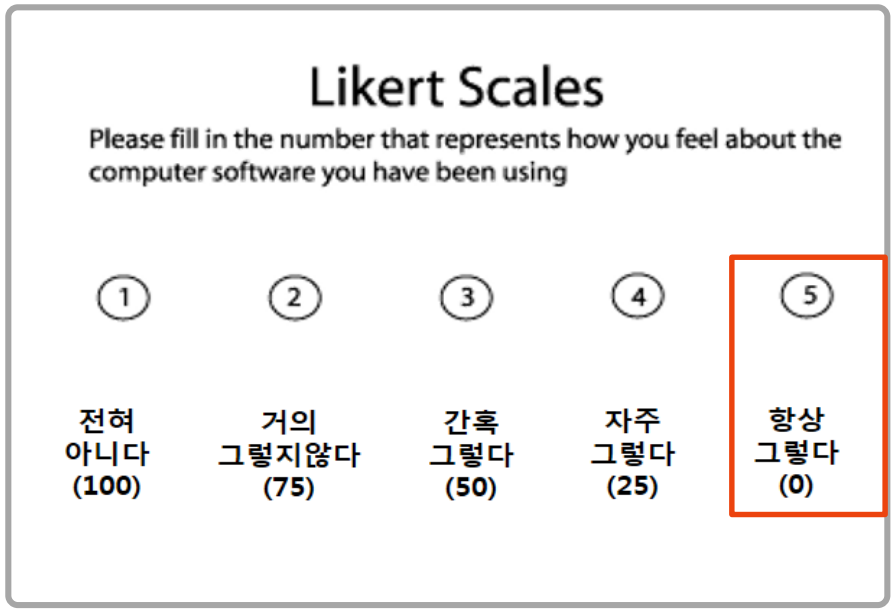
General quality of my life

Reading

Adult strabismus Quality of life Questionnaire (AS-20)

Self perception

Interactior



General quality of my life

Reading

어떤 설문지를 선택할까?

Relative Quality of Life in Pts. c Strabismsus

Graefes Arch Clin Exp Ophthalmol (2017) 255:1851–1858
DOI 10.1007/s00417-017-3694-x

PEDIATRICS

Differences in quality-of-life dimensions of Adult Strabismus Quality of Life and Amblyopia & Strabismus Questionnaires

Elizabeth S. van de Graaf[1] · Gerard J. J. M. Borsboom[2] · Geertje W. van der Sterre[1] · Joost Felius[3] · Huibert J. Simonsz[1] · Henk Kelderman[4]

AS-20 vs. ASQE (The amblyopia and Strabismus Questionnaire)

어떤 설문지를 선택할까?

ASQE
(The amblyopia and Strabismus Questionnaire)

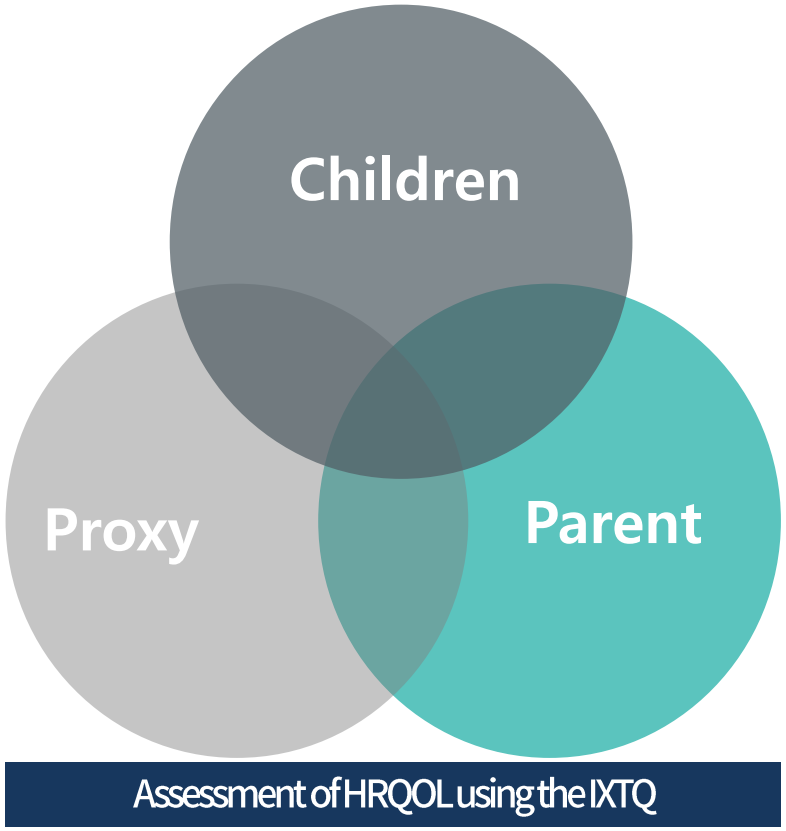
내 눈 때문에 취미생활을 즐길 수 없다 (X)
내 눈 상태 때문에 독서에 어려움을 겪는다(X)

Adult patients with childhood-onset strabismus and/or amblyopia

Item
1. I can see equally well with both eyes.
2. I worry about losing my better eye.
3. I worry that something might get into my better eye.
4. I can estimate distances well.
5. I have good depth perception.
6. I feel unsure or hesitant when putting something on a table.
7. I miss the other person's hand when trying to shake hands.
8. I have difficulty parking my car.
9. I find it difficult to put the cap on a pen or marker.
10. I find it difficult to put a power plug into a socket.
11. I have difficulties pouring drinks.
12. I have difficulties walking down stairs.
13. I have difficulties playing ball games.
14. I have difficulties finding my way in a shopping mall, especially when I am there for the first time.
15. I have difficulties finding my way in a department store or a supermarket, especially when I am there for the first time.
16. I have difficulties finding my way in a train station, especially when I am there for the first time.
17. I see double.
18. Double vision disturbs me in my daily activities (household, study, school, hobbies, work).
19. When I am tired, I must be very careful not to miss what I reach for.
20. I have to do things more slowly when I am tired because of my eyesight.
21. I have to squint or shut one eye in bright sunlight.
22. I have difficulty making eye contact in a one-on-one conversation.
23. I have difficulty making eye contact with people in a group conversation.
24. My eyes are misaligned (one or both eyes cross, or turn out or turn up).
25. Because of my misaligned eyes I feel insecure.
26. If I did not have misaligned eyes, I would have more self-confidence.

목적 및 질환에 맞게 설문지 선택 /두가지 설문지를 비교

Intermittent exotropia questionnaire (IXTQ)



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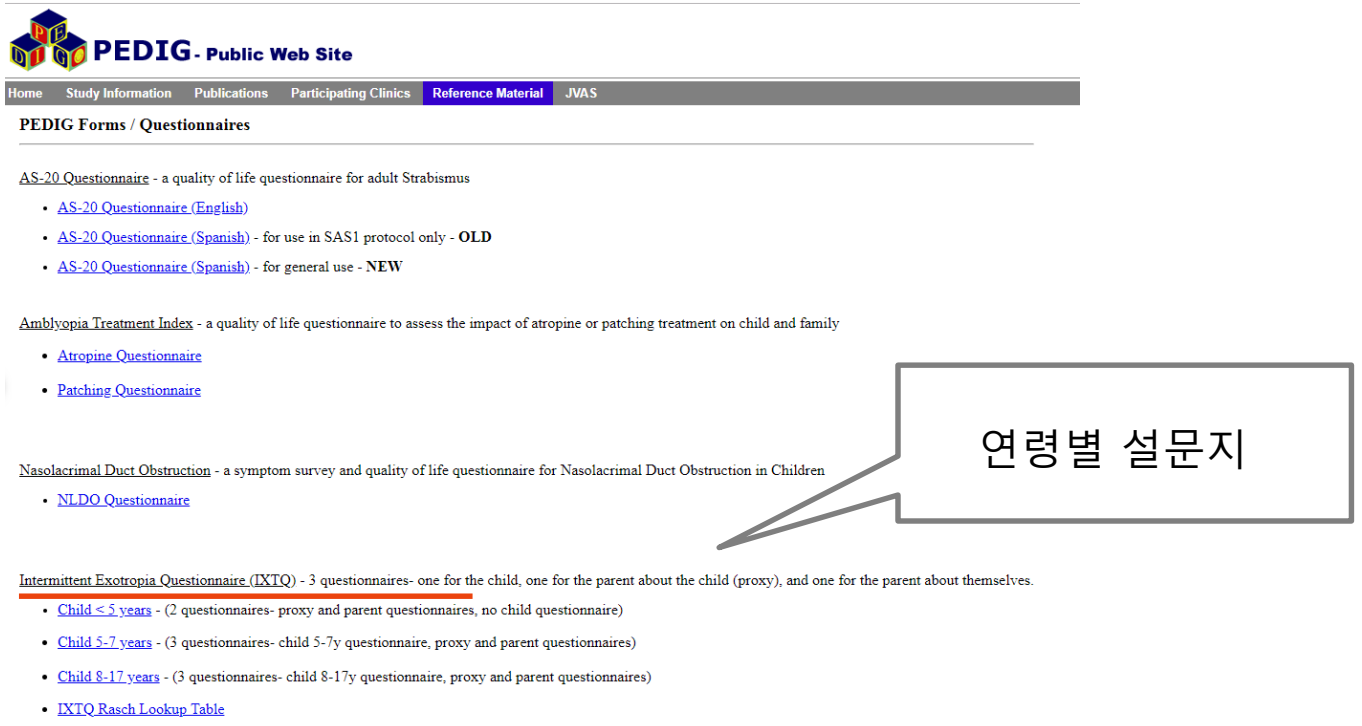
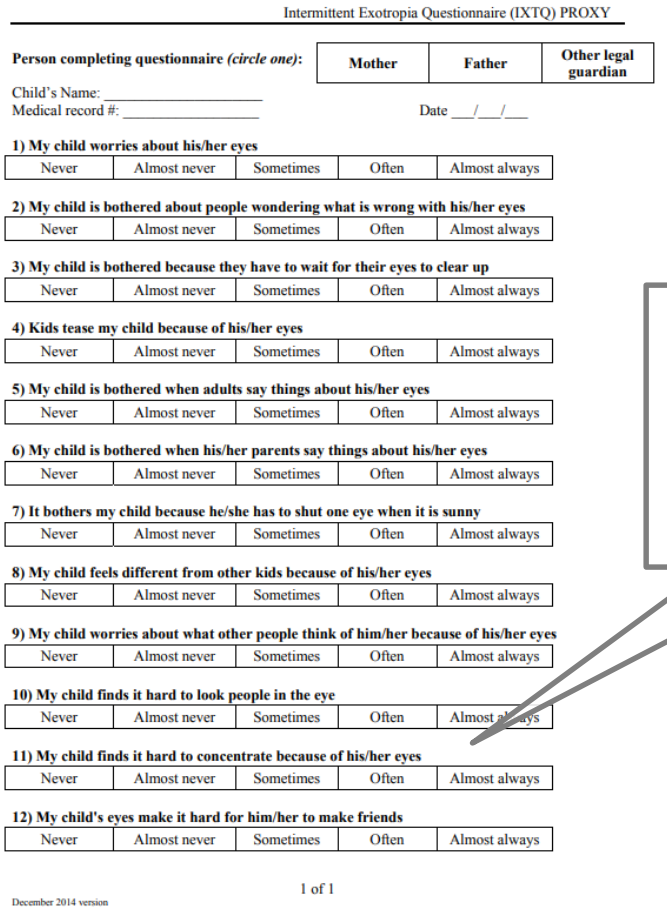


http://pedig.jaeb.org/ViewPage.aspx?PageName=Reference

IXTQ_Child < 5 years



Intermittent Exotropia Questionnaire (IXTQ) PROXY

Person completing questionnaire *(circle one)*: | **Mother** | **Father** | **Other legal guardian**

Child's Name: _____
Medical record #: _____ Date ___/___/___

	Never	Almost never	Sometimes	Often	Almost always
1) My child worries about his/her eyes					
2) My child is bothered about people wondering what is wrong with his/her eyes					
3) My child is bothered because they have to wait for their eyes to clear up					
4) Kids tease my child because of his/her eyes					
5) My child is bothered when adults say things about his/her eyes					
6) My child is bothered when his/her parents say things about his/her eyes					
7) It bothers my child because he/she has to shut one eye when it is sunny					
8) My child feels different from other kids because of his/her eyes					
9) My child worries about what other people think of him/her because of his/her eyes					
10) My child finds it hard to look people in the eye					
11) My child finds it hard to concentrate because of his/her eyes					
12) My child's eyes make it hard for him/her to make friends					

1 of 1

December 2014 version

나의 아이는 눈 때문에 집중하기 힘들어 한다.

Proxy (보호자가 아이를 관찰) – 12 개 항목

IXTQ_Child < 5 years

Person completing questionnaire (*circle one*) | **Mother** | **Father** | **Other legal guardian**

Child's Name: _____

Medical record #: _____ Date ___/___/___

1) I worry about my child's eyes

Never	Almost never	Sometimes	Often	Almost always

2) I worry that my child will be less independent because of his/her eyes

Never	Almost never	Sometimes	Often	Almost always

3) I worry that my child will have permanent damage to his/her eyes

Never	Almost never	Sometimes	Often	Almost always

4) I worry that my child doesn't see well

Never	Almost never	Sometimes	Often	Almost always

5) I worry about how my child's eyes will affect him/her socially

Never	Almost never	Sometimes	Often	Almost always

6) I worry that my child will get hurt physically because of his/her eyes

Never	Almost never	Sometimes	Often	Almost always

7) I worry about the possibility of surgery

Never	Almost never	Sometimes	Often	Almost always

8) I worry about my child becoming self-conscious because of his/her eyes

Never	Almost never	Sometimes	Often	Almost always

9) I worry that my child will not be able to see the board at school

Never	Almost never	Sometimes	Often	Almost always

10) I worry about other kids teasing my child because of his/her eyes

Never	Almost never	Sometimes	Often	Almost always

11) It worries me what others will think about my child because of his/her eyes

Never	Almost never	Sometimes	Often	Almost always

Medical record #: _____

12) I worry that my child's eye condition will affect his/her personality

Never	Almost never	Sometimes	Often	Almost always

13) I worry that my child's eyes will affect his/her social life if nothing is done

Never	Almost never	Sometimes	Often	Almost always

14) I worry about my child's eyesight long term

Never	Almost never	Sometimes	Often	Almost always

15) I worry about my child's depth perception

Never	Almost never	Sometimes	Often	Almost always

16) I worry about whether or not my child should have surgery

Never	Almost never	Sometimes	Often	Almost always

17) I worry about my child's abili[illegible] to make friends

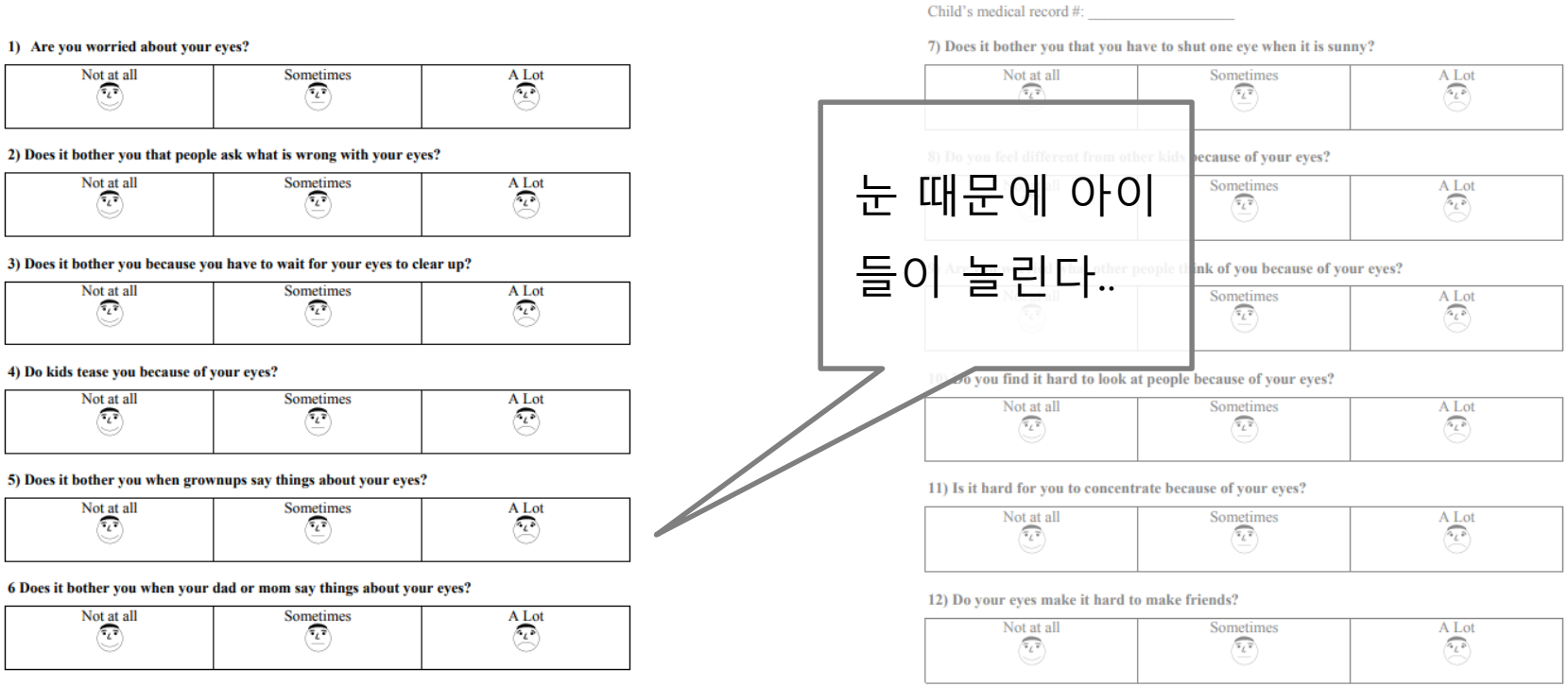
Never	Almost never	[illegible]	Often	Almost always

나는 나의 아이가 수술을 받아야 할지 여부에 대해 염려된다.

Parent – 17개 항목

IXTQ_Child 5-7 years

- Not at all (100), Sometimes (50), A lot (0), I don't know



- Matching card with face symbols to aid young children

IXTQ_Child 8-17 years

환자용

	Never	Almost never	Sometimes	Often	Almost always
1) I worry about my eyes					
2) It bothers me that people wonder what is wrong with my eyes					
3) It bothers me because I have to wait for my eyes to clear up					
4) Kids tease me because of my eyes					
5) I am bothered when grownups say things about my eyes					
6) I am bothered when my parents say things about my eyes					
7) It bothers me that I have to shut one eye when it is sunny					
8) I feel different from other kids because my eyes go in and out					
9) I worry about what other people think of me because of my eyes					
10) My eyes make it hard to look people in the eye					
11) It is hard to concentrate because of my eyes					
12) My eyes make it hard for me to make friends					

대리인용

Person completing questionnaire *(circle one)*: Mother | Father | Other legal guardian

Child's Name: _____
Medical record #: _____ Date ___/___/___

	Never	Almost never	Sometimes	Often	Almost always
1) My child worries about his/her eyes					
2) My child is bothered about people wondering what is wrong with his/her eyes					
3) My child is bothered because they have to wait for their eyes to clear up					
4) Kids tease my child because of his/her eyes					
5) My child is bothered when adults say things about his/her eyes					
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보호자용

Person completing questionnaire *(circle one)* Mother | Father | Other legal guardian

Child's Name: _____

Medical record #: _____ Date ___/___/___

	Never	Almost never	Sometimes	Often	Almost always
1) I worry about my child's eyes					
2) I worry that my child will be less independent because of his/her eyes					
3) I worry that my child will have permanent damage to his/her eyes					
4) I worry that my child doesn't see well					
5) I worry about how my child's eyes will affect him/her socially					
6) I worry that my child will get hurt physically because of his/her eyes					
7) I worry about the possibility of surgery					
8) I worry about my child becoming self-conscious because of his/her eyes					
9) I worry that my child will not be able to see the board at school					
10) I worry about other kids teasing my child because of his/her eyes					
11) It worries me what others will think about my child because of his/her eyes					

환자, 대리인, 보호자

삶의 질 연구_국내

Quality of Life, Korea

사시 수술이 삶의 질에 미치는 영향에 관한 연구

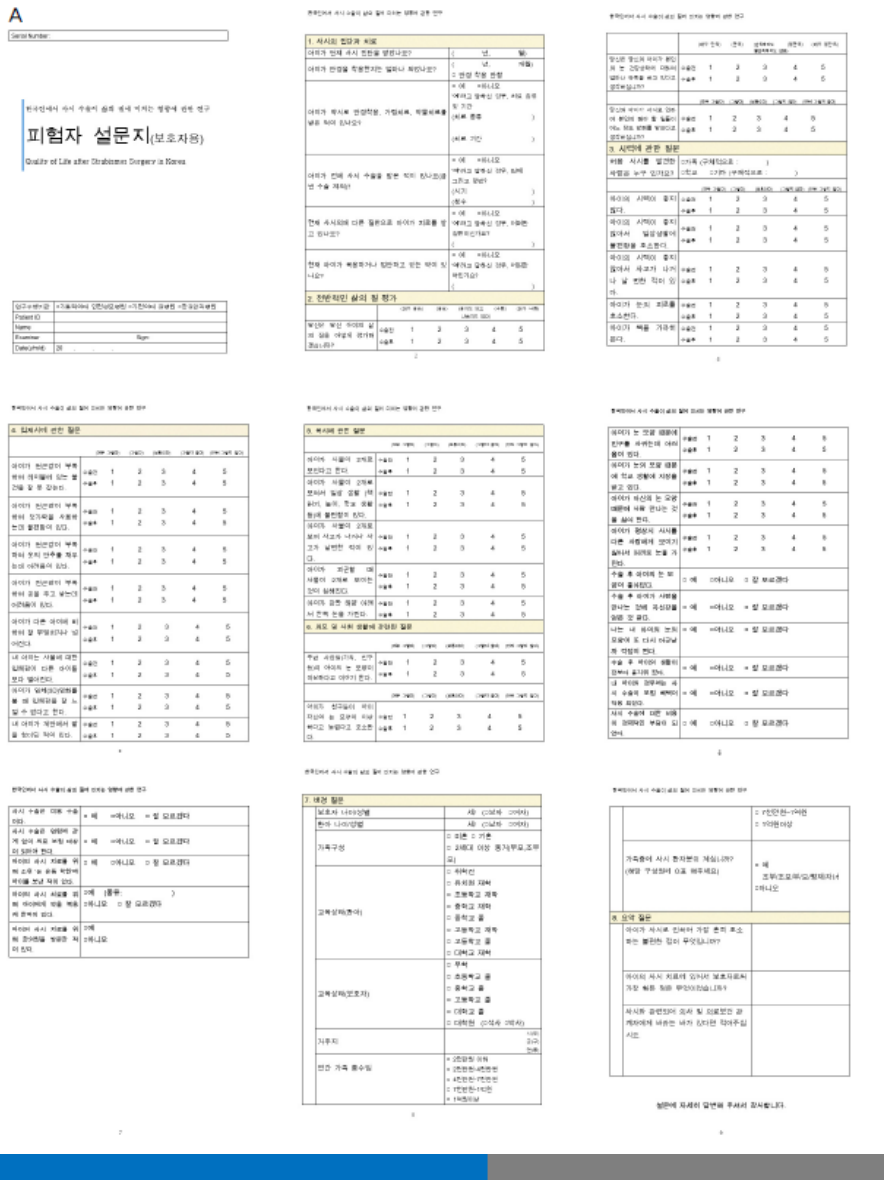
김수아 · 임혜빈

가톨릭대학교 의과대학 인천성모병원 안과학교실

목적: 사시 수술을 받은 환자에서 수술 전과 비교한 수술 후 기능적 변화에 대하여 알아보고 이에 따른 수술 만족도와 주관적인 삶의 질에 대한 평가가 어떻게 달라지는지를 조사하였다.
대상과 방법: 2010년 8월부터 2012년 8월까지 본원 안과에 내원하여 사시 수술을 받은 15세 미만 163명, 15세 이상 50명의 환자를 대상으로 설문을 시행하였고, 이를 바탕으로 수술 전과 비교한 수술 후 만족도 및 삶의 질에 대한 환자들의 인식 변화를 분석하였다.
결과: 모든 군에서 사시 수술 전과 후의 전반적인 삶의 질의 개선이 유의하게 나타났고 수술 후 삶의 질이 악화된 경우는 없었다. 시력, 입체시, 복시, 외모 및 사회생활에 관한 평가 항목의 점수는 모두 수술 전후에 유의한 차이가 있었다($p<0.05$). 수술의 횟수에 따른 삶의 질 변화, 눈 건강에 대한 만족도, 사시로 인한 생활의 방해도에 대한 점수 차이는 없었다. 15세 미만에서는 설문지의 문항 중 외모 및 사회생활과 경제적 수준이 수술 전후의 전반적인 삶의 질의 개선과 유의하게 연관이 있었고, 15세 이상에서는 외모 및 사회생활만이 유의한 연관성을 보였다. 두군 모두에서 의료보험 적용 연령을 확대하는 것에 대한 건의가 가장 많았다.
결론: 사시 수술은 삶의 질 개선에 긍정적인 영향을 주고, 특히 삶의 질의 개선 정도는 외모 및 사회생활에 대한 평가 항목의 점수 변화와 밀접한 관계가 있었다.
〈대한안과학회지 2013;54(9):1407-1415〉

대한안과학회지 2013년 제 54권 제 9호

평가 설문지 ?


A

Serial Number

한국인에서 사시 수술이 삶의 질에 미치는 영향에 관한 연구

피험자 설문지(보호자용)

Quality of Life after Strabismus Surgery in Korea

Appendix 1. Continued.

B

Serial Number

한국인에서 사시 수술이 삶의 질에 미치는 영향에 관한 연구

피험자 설문지(환자용)

Quality of Life after Strabismus Surgery in Korea

평가 설문지 ?

- 세계보건기구 삶의 질 평가 문항(World Health Organization Quality Of Life-BREF: WHOQoLBref)을 본 연구의 목적에 부합하게 변형
- Pediatric Eye Disease Investigator Group(PEDIG)의 간헐외사시에 관한 평가 항목과 기존에 출판 된 삶의 질 연구에서 이용된 항목으로 구성

1) 전반적인 삶의 질, 2) 시력, 3) 입체시, 4) 복시
5) 외모/사회생활, 6) 사회/경제적 배경

평가 설문지 ?

Visual Function Questionnaire

	Never	Infrequently	Frequently
blurry vision with reading or doing near work			
words go in and out of focus when reading			
headaches with reading or doing near work			
things far away look blurry after reading			
vision is worse at the end of the day			
avoid reading or doing homework			
hold reading material close to face			
eyes feel tired, sore or uncomfortable after reading			
words run together, move, jump or swim			
you see two of something when there should be one			
close or cover one eye when reading			
difficulty copying from the board			
lose your place when reading			
perform poorly in math, misalign digits or columns			
skip words, skip lines or reread material			
omit small words when reading			
reverse letters or numbers			
write up or down hill			
feel sleepy or lose concentration when reading			
trouble understanding or remembering what you read			
dizziness or nausea with reading			
homework takes a long time to complete			
perform below your potential at school			
understand things better when they are verbally explained versus when you read them yourself			
attend extra help in school or get therapy (occupational, physical, speech or reading)			

- NE-VFQ-25 (The 25-Item National Eye Institute Visual Function Questionnaire)

Q 사시환자의 삶의 질은?

사시환자의 삶의 질은 ?

사시환자의 삶의 질은 ?

사시환자의 삶의 질은 ?

- Lowered reading skills in tests of reading fluency in children without binocular vision

Clotuche B et al. J Fr Opthalmol 2016

Strabismus impacts QOL through the functional factors.

사시환자의 삶의 질은 ?

- Hx. of childhood strabismus → Higher rate of mental health problem

Mohney et al. Pediatrics 2008

- Unoperated strabismic pts. → High rate of social phobia

Alpack G et al. Br J Ophthalmol 2014

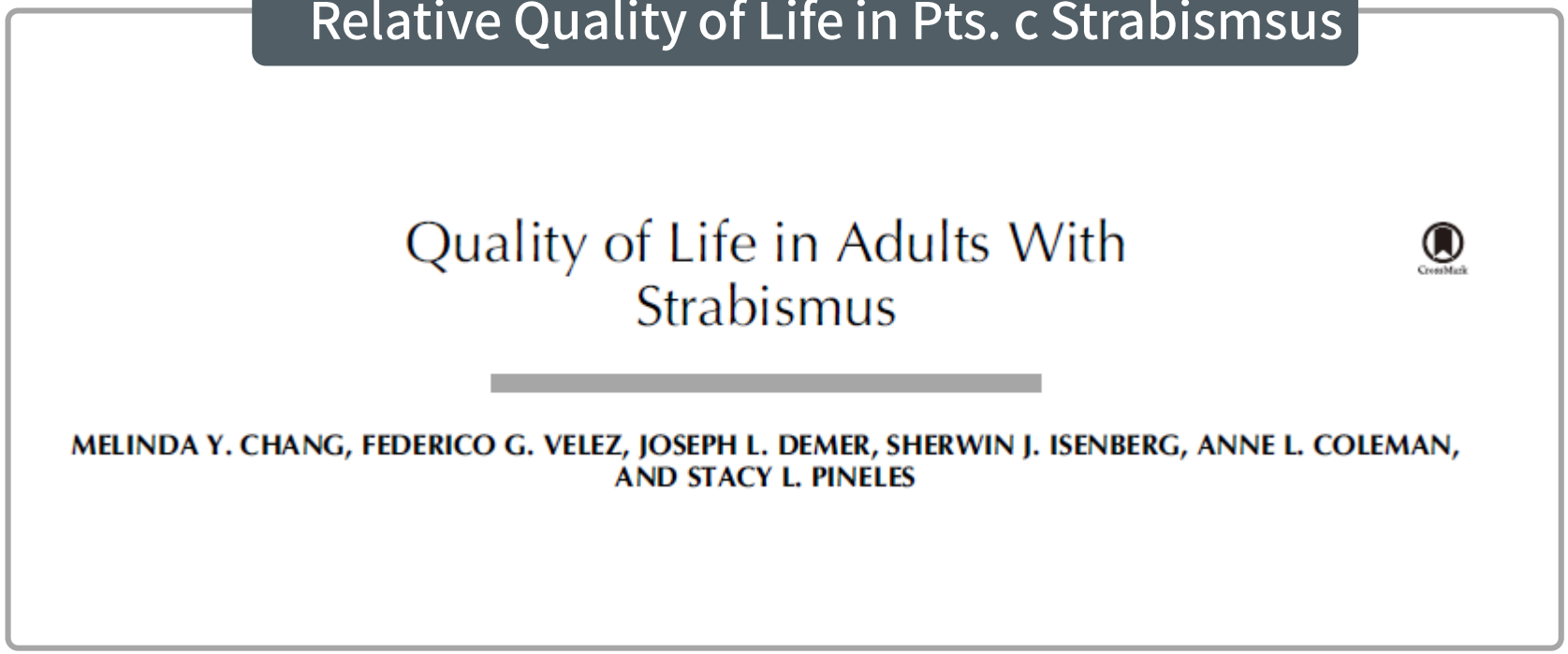
- Depressive symptom ↑

Hatt SR et al. Ophthalmology 2014

Strabismus impacts QOL through the psychosocial factors.

다른 질환과 비교한 삶의 질은?

Relative Quality of Life in Pts. c Strabismsus



Quality of Life in Adults With Strabismus

MELINDA Y. CHANG, FEDERICO G. VELEZ, JOSEPH L. DEMER, SHERWIN J. ISENBERG, ANNE L. COLEMAN, AND STACY L. PINELES

- AMD, Cataract, CMV retinitis, Low vision 비교

다른 질환과 비교한 삶의 질은?

TABLE 2. Comparison of Age, Sex, and Median Binocular Visual Acuity Among Patients With Strabismus, Diabetic Retinopathy, Age-Related Macular Degeneration, Glaucoma, Cataract, Cytomegalovirus Retinitis, and Low Vision

	Strabismus (N = 42)	Diabetic Retinopathy (N = 123)	AMD (N = 108)	Glaucoma (N = 77)	Cataract (N = 93)	CMV Retinitis (N = 37)	Low Vision (N = 90)
Mean age ± SD, y	65 ± 9	57 ± 12 $P < .0001$	76 ± 10 $P < .0001$	67 ± 11 $P = .29$	73 ± 9 $P < .0001$	39 ± 7 $P < .0001$	68 ± 16 $P = .17$
Female, n (%)	22 (54%)	81 (66%) $P = .12$	68 (63%) $P = .23$	42 (54%) $P = .82$	61 (66%) $P = .14$	2 (5%) $P < .0001$	61 (68%) $P = .08$
Median binocular visual acuity	20/20	20/40	20/63	20/25	20/40	20/20	20/252

AMD = age-related macular degeneration; CMV = cytomegalovirus.

Strabismic patients were recruited for the Quality of Life in Adults with Strabismus study, and other patients were enrolled in the National Eye Institute-Visual Functioning Questionnaire Field Test group.

- 평균 0.5 정도 이하의 시력

다른 질환과 비교한 삶의 질은?

TABLE 3. Mean National Eye Institute Visual Functioning Questionnaire-25 Subscale Scores for Patients With Strabismus, Diabetic Retinopathy, Age-Related Macular Degeneration, Glaucoma, Cataract, Cytomegalovirus Retinitis, and Low Vision

	Strabismus (N = 41)	Diabetic Retinopathy (N = 123)	AMD (N = 108)	Glaucoma (N = 77)	Cataract (N = 93)	CMV Retinitis (N = 37)	Low Vision (N = 90)
General health	68 ± 22	46 ± 25	65 ± 25	62 ± 25	55 ± 25	45 ± 24	57 ± 27
General vision	59 ± 20	62 ± 21	53 ± 20	71 ± 17	60 ± 17	76 ± 14	38 ± 18
Ocular pain	65 ± 26	88 ± 17	87 ± 17	89 ± 14	86 ± 19	90 ± 16	85 ± 20
Near activities	61 ± 20	63 ± 30	54 ± 27	79 ± 23	73 ± 21	84 ± 20	36 ± 23
Distance activities	67 ± 21	66 ± 30	56 ± 29	77 ± 25	73 ± 22	84 ± 18	38 ± 26
VS social functioning	81 ± 22	81 ± 26	73 ± 29	89 ± 20	87 ± 19	96 ± 9	50 ± 31
VS mental health	53 ± 28	66 ± 29	58 ± 27	81 ± 20	77 ± 22	74 ± 22	46 ± 27
VS role difficulties	56 ± 29	69 ± 31	61 ± 31	84 ± 23	76 ± 22	78 ± 24	44 ± 29
VS dependency	82 ± 22	77 ± 30	72 ± 30	92 ± 19	88 ± 20	89 ± 12	51 ± 31
Driving	67 ± 23	55 ± 40	39 ± 36	75 ± 28	63 ± 30	80 ± 28	10 ± 23
Color vision	94 ± 13	90 ± 22	85 ± 25	93 ± 17	90 ± 20	98 ± 9	71 ± 31
Peripheral vision	68 ± 25	78 ± 29	77 ± 27	76 ± 27	87 ± 21	78 ± 21	59 ± 32

AMD = age-related macular degeneration; CMV = cytomegalovirus; VS = vision-specific.

Strabismic patients were recruited for the Quality of Life in Adults with Strabismus study, and other patients were enrolled in the National Eye Institute-Visual Functioning Questionnaire Field Test group. Dark gray shading indicates subscale scores that were significantly better than scores of patients with strabismus; light gray shading denotes subscale scores that were not significantly different from scores of strabismic patients; and white shading indicates subscale scores that were significantly worse than those of patients with strabismus.

Ocular pain, Mental health

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- Ocular pain, Mental health

다른 질환과 비교한 삶의 질은?

TABLE 1. Demographic and Clinical Characteristics of 42 Patients With Strabismus Who Participated in the Quality of Life in Adults With Strabismus Study

Mean age, y (range)	65 (52–90)
Female (%)	22 (54%)
Median binocular visual acuity (range)	20/20 (20/12.5–20/50)
Ethnicity	
White	36
Asian	3
Hispanic or Latino	3
Type of strabismus	
Esotropia	15
Exotropia	8
Hypertropia	15
Combined vertical and horizontal strabismus	4
Other ocular disease	
Cataract	3
Glaucoma	1
AMD	1
Dry eyes	1
High myopia	1
Retinal detachment	1
Blepharoptosis	1
Number (%) of patients with measurable near stereoacuity	15 (36%)
Number (%) of patients with measurable distance stereoacuity	9 (21%)
Number (%) of patients with diplopia	34 (81%)

- Intermittent XT ?

간헐외사시 환아들의 삶의 질은?

Children with intermittent exotropia

STRABISMUS
2016, VOL. 24, NO. 4, 139–145
http://dx.doi.org/10.1080/09273972.2016.1242640

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

Symptoms in Children with Intermittent Exotropia and Their Impact on Health-Related Quality of Life

Sarah R. Hatt, DBO, David A. Leske, MS, Laura Liebermann, CO, and Jonathan M. Holmes, BM, BCh

Department of Ophthalmology, Mayo Clinic, Rochester, MN, USA

- 8세 – 17세 사시의 간헐외사시 환아들의 증상

간헐외사시 환아들의 삶의 질은?

Table 1. Intermittent exotropia symptom questionnaire showing proportion with symptoms rated "sometimes" or more on the questionnaire.

Symptom questionnaire items*	Proportion with symptoms present
1. Can you tell your eye is wandering?	9/35; 26%
2. Do you have blurry or fuzzy vision?	6/35; 17%
3. Do you have to blink to control your eyes?	15/35; 43%
4. Do your eyes hurt?	2/35; 6%
5. Do your eyes feel tired?	**22/35; 63%†**
6. Do your eyes feel funny?	7/35; 20%
7. Can you see around to the side and straight ahead at the same time?	**17/35; 49%†**
8. Do you have double vision? (Do you see two of things when you know there is really only one?)	10/35; 29%
9. Is it hard for you to stare at things?	10/35; 29%
10. Do you have problems seeing how far away things are?	12/35; 34%
11. Do you have problems with your eyes in the sun?	**22/35; 63%†**
12. Do your need to pull your eyes in?	5/35; 14%
13. Do your eyes make you feel dizzy?	5/35; 14%
14. Do you find it hard to see things?	7/35; 20%
15. Do your eyes feel weird?	7/35; 20%
16. Do you have to shut one eye?	**17/35; 49%†**
17. Do other people tell you that your eye is wandering?	10/35; 29%
18. Do you rub your eyes?	**29/35; 83%†**
19. Do you have problems reading?	10/35; 29%
20. Do your eyes go in and out?	7/35; 20%
21. Is it hard to focus your eyes?	11/35; 31%
22. Do you have to blink a lot?	14/35; 40%

- 눈피로, 눈부심, 눈비빔, 깜빡임

보호자의 삶의 질은?

Children with intermittent exotropia

ARVO Annual Meeting Abstract | April 2009

Reduced Quality of Life in Childhood Intermittent Exotropia

S. R. Hatt; D. A. Leske; T. Yamada; E. A. Bradley; J. M. Holmes

Possible surgery, psychosocial concerns, and function concerns of the child

- Childhood IXT also affects the HRQOL of the parents

Q 수술 후 과연 달라질 수 있나?

환자들이 기대하는 것은?

Quality of Life after Strabismus Surgery

Clinical science

What do patients with strabismus expect post surgery? The development and validation of a questionnaire

Hayley McBain,[1,2] Kelly MacKenzie,[3] Joanne Hancox,[3] Daniel G Ezra,[3,4] Gillian GW Adams,[3] Stanton P Newman[1]

- Expectations of Strabismus Surgery Questionnaire (ESSQ)

환자들이 기대하는 것은?

Appearance of My eye

My double Vision

Table 2 Responses and item loadings for the Expectations of Strabismus

	Mean (SD)	Made considerably worse n (%)	Made worsen (%)
The appearance of my eyes	4.24 (0.79)	2 (0.91)	1 (0.46)
My double vision*	3.90 (0.90)	1 (0.48)	2 (0.97)
My vision	3.84 (0.90)	2 (0.91)	2 (0.97)
How embarrassed I feel when people look at me	3.94 (0.82)	1 (0.46)	0 (0.00)
My confidence	4.05 (0.76)	1 (0.46)	0 (0.00)
The appearance of my face	3.90 (0.81)	2 (0.91)	0 (0.00)
The position of my head	3.77 (0.82)	1 (0.46)	1 (0.46)
My ability to read	3.68 (0.80)	1 (0.46)	0 (0.00)
My depth perception	3.61 (0.76)	1 (0.46)	0 (0.00)
My ability to concentrate	3.59 (0.73)	1 (0.46)	1 (0.46)
My headaches/eye pain	3.55 (0.75)	2 (0.91)	0 (0.00)
My ability to form intimate relationships	3.40 (0.67)	1 (0.46)	0 (0.00)
My ability to meet new friends	3.39 (0.62)	1 (0.46)	0 (0.00)
My ability to obtain/keep a job	3.25 (0.56)	1 (0.46)	0 (0.00)
My relationship with my doctor/ophthalmologist	3.21 (0.52)	1 (0.46)	0 (0.00)
My relationship with my friends	3.16 (0.45)	1 (0.46)	0 (0.00)
My relationship with my family	3.08 (0.33)	1 (0.46)	0 (0.00)
Eigenvalue			
Variance explained in %			

외모와 복시가 가장 큰 관심

수술 후 삶의 질이 달라질 수 있나?

Quality of Life after Strabismus Surgery

Effectiveness of strabismus surgery on the health-related quality of life assessment of children with intermittent exotropia and their parents: a randomized clinical trial

Xiang Wang, MD, PhD,[a,b] Xueping Gao, MD, PhD,[c] Manyi Xiao, MD, PhD,[d] Luosheng Tang, MD, PhD,[d] Xin Wei, MD, PhD,[d] Jiexi Zeng, MD, PhD,[d] and Yunping Li, MD, PhD[d,e,f]

- Surgery group vs. Active monitoring group

수술 후 삶의 질이 달라질 수 있나?

Table 1. Baseline characteristics of patients in the surgery and active monitoring groups[b]

Characteristics	Surgery group (n = 63)	Active monitoring group (n = 57)	*P* value
Sex (M/F)	31/32	30/27	0.708[a]
Age, years, mean ± SD	10.5 ± 2.4	10.5 ± 2.3	0.783[b]
Distance deviation, PD mean ± SD	33.49 ± 7.33	31.05 ± 6.99	0.092[b]
Near deviation, PD, mean ± SD	33.25 ± 6.97	31.14 ± 6.95	0.121[b]
VA of worse eye, mean (range)	20/25 (20/50-20/13)	20/25 (20/60-20/13)	0.671[b]
Stereoacuity (monofixation), n (%)	22 (34.9)	20 (35.1)	1[c]
Distance control score, median (quartiles)	3.0 (2.0, 4.0)	3.0 (2.0, 3.0)	0.32[b]
Near control score, median (quartiles)	2.0 (1.0, 2.0)	1.0 (1.0, 2.0)	0.11[b]

IXTQ[a]	Groups	Enrollment	3 months after enrollment	Delta values of IXTQ scores[b]	*P* values[c]
Child score[d]	Surgery	58.73 ± 18.37	73.68 ± 12.93	14.95 ± 9.45	<0.0001*
	Monitoring	62.79 ± 15.54	62.43 ± 14.86	−0.37 ± 2.82	0.33
Proxy score[e]	Surgery	54.93 ± 16.44	72.32 ± 11.51	17.39 ± 10.26	<0.0001*
	Monitoring	58.22 ± 15.21	56.47 ± 14.54	−1.75 ± 2.66	<0.0001*
Parental score[f]	Surgery	38.45 ± 19.42	73.20 ± 9.69	34.76 ± 13.40	<0.0001*
	Monitoring	41.36 ± 19.45	37.00 ± 16.80	−4.36 ± 4.51	<0.0001*
Function subscale	Surgery	34.82 ± 19.14	66.37 ± 12.37	31.55 ± 12.28	<0.0001*
	Monitoring	34.59 ± 20.25	33.06 ± 17.72	−1.53 ± 5.09	<0.05**
Psychosocial subscale	Surgery	44.39 ± 21.82	79.88 ± 9.96	35.49 ± 17.46	<0.0001*
	Monitoring	49.50 ± 22.29	41.35 ± 19.37	−8.15 ± 4.26	<0.0001*
Surgery subscale	Surgery	32.14 ± 24.67	77.18 ± 11.57	45.04 ± 21.48	<0.0001*
	Monitoring	39.91 ± 24.94	37.50 ± 20.86	−2.41 ± 13.25	0.17

- Surgery group (child, proxy, parent score ↑)

수술 후 삶의 질이 달라질 수 있나?

Quality of Life after Strabismus Surgery

Improved sensory status and quality-of-life measures in adult patients after strabismus surgery

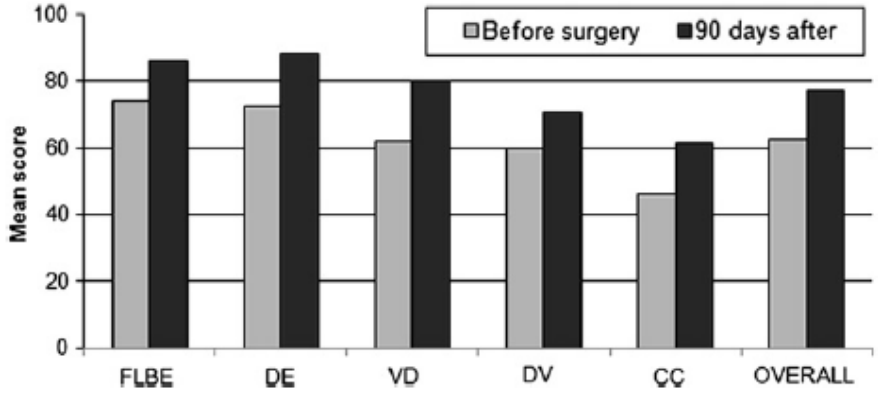
Anna Dickmann, MD,[a] Stefania Aliberti, MD,[a] Maria Teresa Rebecchi, CO,[a] Irene Aprile, PhD,[b] Annabella Salerni, MD,[a] Sergio Petroni, MD,[a,b] Rosa Parrilla, MD,[a,b] Vittoria Perrotta, MD,[a] Emiliana Di Nardo, CO,[a] and Emilio Balestrazzi, MD[a]

- childhood-onset constant strabismus

수술 후 삶의 질이 달라질 수 있나?

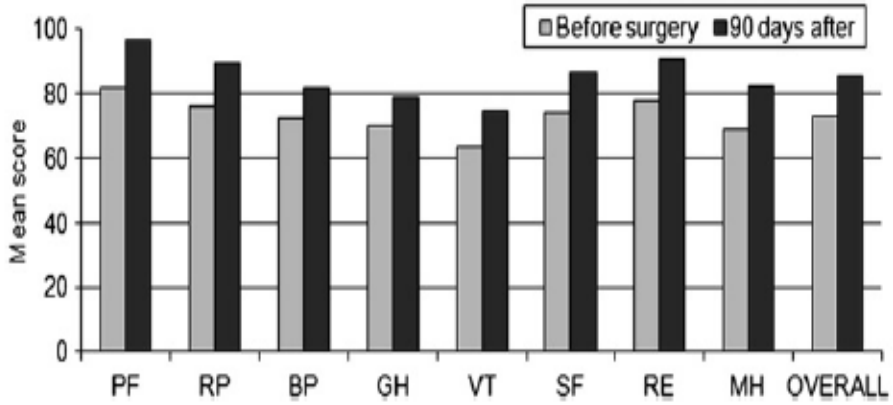
ASQE

(Amblyopia and Strabismus Questionnaire)



36-Item Short Form Health Survey

(SF-36)



Of the 20 patients, 13 achieved a satisfactory postoperative alignment & all showed an increase of binocular fusion

불만족 사시 수술의 원인?

Comparing Outcome Criteria Performance in Adult Strabismus Surgery

Sarah R. Hatt, DBO, David A. Leske, MS, Laura Liebermann, CO, Jonathan M. Holmes, BM, BCh

Purpose: To evaluate the performance of motor, diplopia, and health-related quality of life (HRQOL) criteria when analyzing outcomes of adult strabismus surgery.

Design: Cohort study.

Participants: We studied 159 adults undergoing 171 strabismus surgeries.

Methods: All patients underwent clinical assessment preoperatively and 6 weeks postoperatively, including completion of Adult Strabismus-20 HRQOL questionnaires. Preoperatively, strabismus was classified as either diplopic (n = 117), nondiplopic (n = 38), or atypical diplopic (n = 16). To assess performance of motor, diplopia, and HRQOL criteria, success was defined a priori and applied separately and in combinations. For success: (1) motor criteria, <10 prism diopters by simultaneous prism cover test; (2) diplopia criteria, none or only rare in primary distance and for reading; (3) HRQOL criteria, exceeding previously reported 95% limits of agreement (LOA).

Main Outcome Measures: Surgical success rate when applying motor, diplopia, and HRQOL criteria alone and in combinations.

Results: Overall, success rates were 90% for motor criteria, 74% for diplopia criteria, and 60% for HRQOL criteria. Combining criteria, the highest success rate was for motor plus diplopia criteria (67%) and the lowest success rate was when combining motor, diplopia, and HRQOL criteria (50%).

Conclusions: Applying motor criteria alone yields the highest success rates when evaluating outcomes in adult strabismus surgery, but motor criteria do not fully represent the patient's postoperative status. Combining diplopia criteria with motor criteria provides a more clinically relevant standard for judging the success of adult strabismus surgery. For HRQOL criteria, exceeding 95% LOA at 6 weeks postoperatively seems to be a difficult hurdle to clear for some individual patients, and evaluating change in HRQOL score may be more useful in cohort studies.

Financial Disclosure(s): The authors have no proprietary or commercial interest in any of the materials discussed in this article. *Ophthalmology 2012;119:1930–1936*

- 복시가 있는 경우

불만족 사시 수술의 원인?

Quality of Life after Strabismus Surgery

JAMA Ophthalmology | Original Investigation

Factors Associated With Failure of Adult Strabismus-20 Questionnaire Scores to Improve Following Strabismus Surgery

Sarah R. Hatt, DBO; David A. Leske, MS; Kemuel L. Philbrick, MD; Jonathan M. Holmes, BM, BCh

- Depression, Tyep-D Personality, Facial anomalies

Table. Factors Associated With Failure of AS-20 Scores to Improve on Each of the 4 Domains Using Logistic Regression Analysis

	Self-perception[a]		Interactions		Reading Function		General Function	
Factor	RR (95% CI)	*P* Value From Univariate Analysis	RR (95% CI)	*P* Value From Univariate Analysis	RR (95% CI)	*P* Value From Univariate Analysis	RR (95% CI)	*P* Value From Univariate Analysis
Age	0.98 (0.96-1.01)	.21	1.02 (1.00-1.04)	.12	1.00 (0.99-1.01)	.96	0.99 (0.97-1.01)	.57
Age at onset	0.99 (0.97-1.00)	.14	1.01 (0.99-1.02)	.35	0.99 (0.98-1.00)	.17	0.99 (0.98-1.01)	.29
Sex	2.44 (1.11-5.37)	.02	1.20 (0.57-2.55)	.63	0.97 (0.53-1.78)	.93	0.74 (0.33-1.67)	.47
Previous surgeries, No.	1.11 (0.85-1.43)	.46	0.95 (0.71-1.29)	.77	1.09 (0.85-1.40)	.44	1.07 (0.80-1.43)	.63
Best-eye visual acuity	0.03 (0.00-36.17)	.24	1.50 (0.04-50.66)	.85	0.03 (0.00-2.19)	.07	0.01 (0.00-1.94)	.10
Esotropia								
Preoperative	0.81 (0.35-1.87)	.62	0.88 (0.39-1.98)	.75	0.91 (0.48-1.74)	.78	0.47 (0.17-1.34)	.14
Postoperative	0.63 (0.22-1.74)	.36	0.99 (0.42-2.33)	.99	1.02 (0.48-2.17)	.95	1.04 (0.38-2.87)	.94
Vertical								
Preoperative	0.47 (0.12-1.88)	.26	0.66 (0.21-2.07)	.47	1.02 (0.52-1.98)	.96	1.10 (0.48-2.55)	.82
	2.36 (1.08-5.13)	.03	0.93 (0.35-2.51)	.89	2.20 (1.18-4.11)	.02	1.81 (0.77-4.25)	.18
	0.98 (0.95-1.00)	.13	0.99 (0.96-1.02)	.41	1.00 (0.98-1.02)	.87	0.99 (0.98-1.01)	.63
	1.07 (1.02-1.13)	.02	0.99 (0.91-1.07)	.75	1.05 (1.01-1.09)	.02	1.06 (1.02-1.11)	.02
Visually obtrusive facial anomaly	0.56 (0.18-1.79)	.31	2.10 (1.00-4.41)	.05[b]	0.89 (0.42-1.89)	.75	1.10 (0.43-2.79)	.84
Diplopia questionnaire score								
Preoperative	1.00 (0.99-1.01)	.37	1.00 (0.99-1.01)	.78	1.00 (1.00-1.01)	.29	1.00 (0.99-1.01)	.42
Postoperative	1.02 (1.01-1.03)	.002[b]	1.01 (1.00-1.02)	.09	1.02 (1.01-1.03)	<.001[b]	1.02 (1.01-1.03)	<.001[b]
CESD-R score								
Preoperative	1.01 (0.98-1.04)	.66	1.01 (0.98-1.04)	.58	0.97 (0.93-1.02)	.16	0.99 (0.96-1.02)	.56
Postoperative	1.01 (0.98-1.05)	.49	1.04 (1.02-1.06	.004[b]	1.00 (0.97-1.03)	.84	1.01 (0.99-1.04)	.40
Type-D personality								
Preoperative	2.49 (1.16-5.34)	.02[a]	1.14 (0.52-2.49)	.75	1.02 (0.51-2.03)	.96	2.43 (1.14-5.19)	.02
Postoperative	5.14 (2.39-11.04)	<.001[a,b]	2.19 (1.05-4.58)	.04	1.63 (0.86-3.11)	.15	2.05 (0.93-4.51)	.08

Abbreviations: AS-20, adult strabismus–20 questionnaire; RR, risk ratios; SPCT, simultaneous prism and cover test.

associated. With preoperative type-D personality removed, postoperative diplopia questionnaire score (*P* = .03) and type-D personality postoperatively (*P* < .001) were associated.

불만족 사시 수술의 원인?

Quality of Life after Strabismus Surgery

외사시 환아에서 사시 수술 전후 주의력결핍 과다활동의 양상

유수리나[1] · 정승아[1] · 장윤희[2] · 이종복[1]

연세대학교 의과대학 안과학 교실, 시기능개발연구소[1], 아주대학교 의과대학 안과학교실[2]

목적: 외사시 환아에서 사시 수술 전후 주의력결핍 과다활동 양상의 변화에 대해 알아보고자 하였다.
대상과 방법: 외사시 환아 67명을 대상으로 사시 수술 전과 수술 후 3개월에 주의력결핍 과다활동장애 평가설문을 작성하여 이를 전향적으로 분석하였다. 수술 전 설문 점수 15점을 기준으로 두 군을 나누어 연령, 성별, 사시각, 항상성, 사시 발견 시기, 유병기간, 수술결과를 조사하고 수술 전후 설문 점수의 변화 양상을 분석하였다.
결과: 15점 미만군은 43명, 15점 이상군은 24명이었고 남아에서 15점 이상의 비율이 유의하게 높았다(p=0.048). 수술 전후의 설문점수는 15점 미만군에서 술 후 1.30점 증가, 15점 이상군에서 1.04점 감소하였으나 의미 있는 변화는 아니었다. 사시 수술 성공여부를 고려하였을 때 수술결과에 따른 설문점수의 유의한 변화는 없었다.
결론: 외사시 환아에서 부모 설문에 의한 주의력결핍 과다활동 양상은 사시 수술 후에도 의미 있는 변화가 없는 것으로 나타났다.
〈대한안과학회지 2009:50(5):756-761〉

수술 후 모든 것이 좋아질 것이라는 기대는 금물

의사 및 보건의료 관계자에게 바라는 점

Quality of Life after Strabismus Surgery

사시 수술이 삶의 질에 미치는 영향에 관한 연구

김수아 · 임혜빈

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목적: 사시 수술을 받은 환자에서 수술 전과 비교한 수술 후 기능적 변화에 대하여 알아보고 이에 따른 수술 만족도와 주관적인 삶의 질에 대한 평가가 어떻게 달라지는지를 조사하였다.

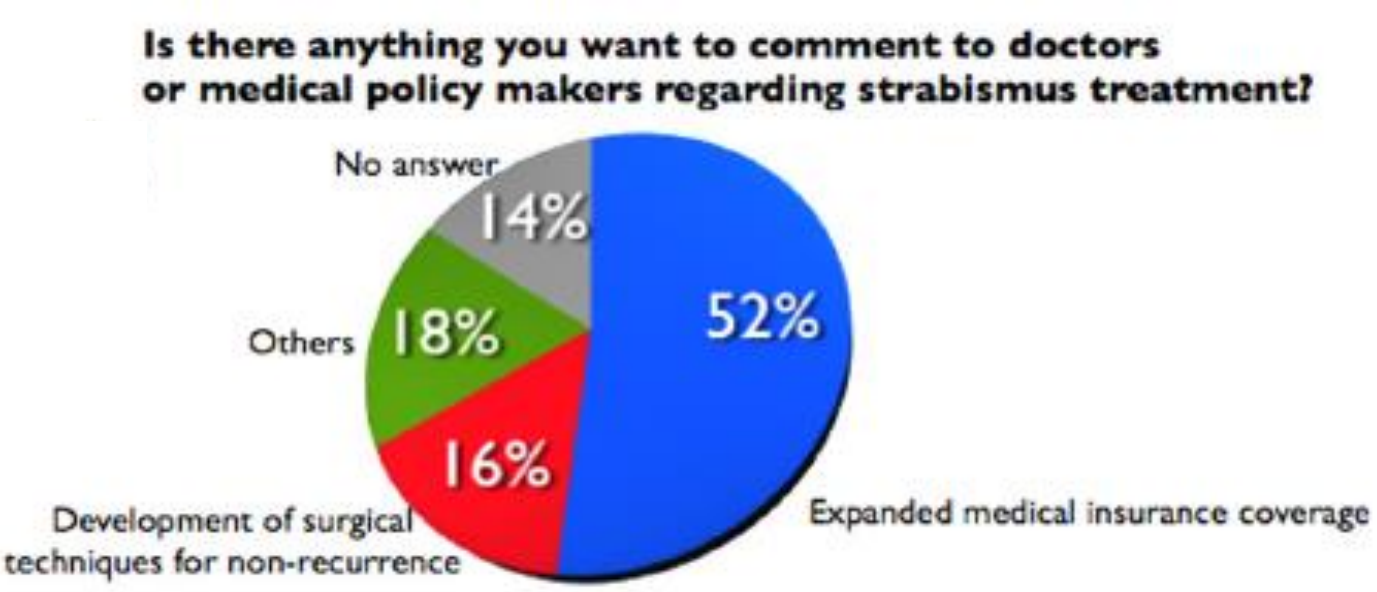
대상과 방법: 2010년 8월부터 2012년 8월까지 본원 안과에 내원하여 사시 수술을 받은 15세 미만 163명, 15세 이상 50명의 환자를 대상으로 설문을 시행하였고, 이를 바탕으로 수술 전과 비교한 수술 후 만족도 및 삶의 질에 대한 환자들의 인식 변화를 분석하였다.

결과: 모든 군에서 사시 수술 전과 후의 전반적인 삶의 질의 개선이 유의하게 나타났고 수술 후 삶의 질이 악화된 경우는 없었다. 시력, 입체시, 복시, 외모 및 사회생활에 관한 평가 항목의 점수는 모두 수술 전후에 유의한 차이가 있었다($p<0.05$). 수술의 횟수에 따른 삶의 질 변화, 눈 건강에 대한 만족도, 사시로 인한 생활의 방해도에 대한 점수 차이는 없었다. 15세 미만에서는 설문지의 문항 중 외모 및 사회생활과 경제적 수준이 수술 전후의 전반적인 삶의 질의 개선과 유의하게 연관이 있었고, 15세 이상에서는 외모 및 사회생활만이 유의한 연관성을 보였다. 두군 모두에서 의료보험 적용 연령을 확대하는 것에 대한 건의가 가장 많았다.

결론: 사시 수술은 삶의 질 개선에 긍정적인 영향을 주고, 특히 삶의 질의 개선 정도는 외모 및 사회생활에 대한 평가 항목의 점수 변화와 밀접한 관계가 있었다.

〈대한안과학회지 2013;54(9):1407-1415〉

불만족 사시 수술의 원인?



- 비용에 대한 장벽, 재발을 줄일 수 있는 방법

의사 및 보건의료 관계자에게 바라는 점

Quality of Life after Strabismus Surgery

사시 환자의 수술 전 기대와 두려움 및 술 후 일상생활로의 복귀 과정에 관한 연구

김중훈 · 김승현 · 조윤애

고려대학교 의과대학 안과학교실

목적: 사시 수술을 받은 환자가 수술 전 가지게 되는 기대와 두려움 및 수술 후 환자가 일상생활로 복귀하는 과정에 대해 알아보고자 하였다.
대상과 방법: 사시 수술을 받은 지 1개월 이상 되는 85명의 소아 환자 및 보호자와 성인 환자에게 설문지를 작성하게 한 후 분석하였다.
결과: 77%의 환자 및 보호자가 수술에 대한 설명을 들은 후 한 번의 수술로 완치될 것이라고 기대하였고 재발에 대해 가장 두려웠다고 60%에서 대답하였다. 가림치료에 대해서는 58%의 환자들이 수술 후 2주에서 1개월까지 가림치료를 받았다고 응답하였다. 수술 직후 직장 및 학교 등에서의 성취도가 수술 전에 비해 75–100% 정도였다는 응답이 83%로 가장 많았고 성취도가 떨어진 이유는 가림치료로 인한 안대 착용이라는 응답이 61%로 가장 많았으며 응답자의 58%에서 수술 후 1주에서 2주 사이에 성취도가 수술 전과 같아졌다고 응답하였다.
결론: 수술 전 재발 가능성에 대한 바른 설명이 환자 및 보호자의 수술 결과에 대한 두려움과 잘못된 기대를 줄일 수 있을 것으로 생각하고 사시 수술 후 직장이나 학교 등 일상생활로의 복귀는 1주에서 2주 이내에 가능하였다.
〈대한안과학회지 2012;53(3):440–445〉

4

맺음말
Conclusion

삶의 질 연구의 한계점

- 주관적인 설문조사
- 소아 응답이 어려움
- 환자/보호자의 수입, 학력 등 사회경제적 배경에 대한 문항 ↓
- Placebo effect (수술 실패한 경우도 QOL score ↑)

입체시의 경우 객관적 검사와 일치 하지 않을 수 있으나,
실제생활에서의 기능은 설문조사가 더 잘 반영할 수 있음.

요점
Executive Summary

사시에 대한 Fact “3E”

Evidence

성공여부: 술 후 사시각

환자의 기대치가 높아짐

삶의 질을 정량화된 점수화하여 수술을 통해 개선되는 긍정적인 부분을 다각적으로 보여줄 필요.

Effect

사시수술은 환자가 수술 전 보다 만족스러운 삶의 영위할 수 있게 하는 우수한 효용성

특히 외모 및 사회생활에 대한 긍정적인 효용

Effort

높은 기대와 재발에 대한 두려움

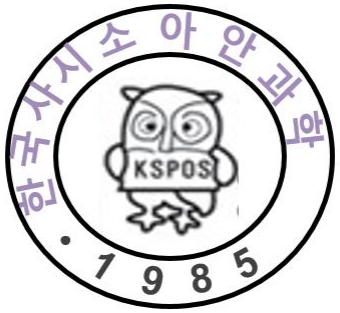
결막충혈, 수술 후 가림, 수술 후 불편감을 줄이는 노력

사시환자/보호자의 삶의 질 & 수술 후 변화

Heath related quality of life

Strabismus surgery: More than align the eyes

Reconstructive surgery



경청해 주셔서 감사합니다.