

# Investigation of factors associated with the success of adult strabismus surgery from the patient's perspective

Peng Yong Sim, MBChB (Hons), BMedSci (Hons),<sup>a</sup> Charles Cleland, MBBS, BSc,<sup>a</sup> Jonathan Dominic, BMedSci (Hons) Orthoptics,<sup>a</sup> and Saurabh Jain, FRCOphth, FHEA<sup>a,b</sup>

|                    |   |
|--------------------|---|
| <b>PURPOSE</b>     | To explore factors that influence the success of adult strabismus surgery based on health-related quality of life (HRQOL) criteria.   |
| <b>METHODS</b>     | The HRQOL aspect of strabismus surgery was assessed using the Adult Strabismus 20 (AS-20) questionnaire. Adult patients ( $\geq 16$ years of age) undergoing strabismus surgery between 2014 and 2016 were identified using a treatment register. Pre- and postoperative AS-20 scores were calculated. HRQOL surgical success was defined as a pre- to postoperative change in AS-20 score exceeding previously published 95% limits of agreement. Any relationship between demographic factors (sex, age, and socioeconomic status), presence or absence of diplopia, type and magnitude of deviation, and change in deviation size with HRQOL success was investigated. |
| <b>RESULTS</b>     | A total of 87 patients were included (mean age, 47 years; 53% female). Nondiplopic patients showed significantly lower pre- and postoperative scores on the AS-20 psychosocial subscale compared to diplopic patients. Of 87 surgeries, 54 (62%) were classified as successful based on HRQOL criteria. Multiple logistic regression analysis showed only lower socioeconomic status to be significantly associated with a higher rate of HRQOL success ( $P = 0.04$ ).   |
| <b>CONCLUSIONS</b> | Strabismic patients with a lower socioeconomic status are more likely to achieve HRQOL success following surgery. We also show that nondiplopic patients have more psychosocial concerns than those with diplopia and that this disparity persists even after strabismus surgery. (J AAPOS 2018; ■:1-6)   |

Strabismus affects up to 4% of adults,<sup>1</sup> and can have a major negative psychosocial impact on quality of life.<sup>2-5</sup> Strabismus surgery has been shown not only to improve visual function and binocularity<sup>6</sup> but also to have long-lasting effects on the psychosocial well-being of patients.<sup>7,8</sup> Different outcome criteria currently exist to evaluate postoperative success following strabismus surgery, namely, motor, diplopia, and health-related quality of life (HRQOL) criteria.<sup>9</sup> Of these, the HRQOL criteria provide a holistic assessment of strabismus surgical outcomes by taking into account the patient's perspective.

The development of the Adult Strabismus 20 (AS-20) questionnaire has permitted the evaluation of strabismus-specific HRQOL by assessing both the functional and psychosocial aspects of the condition.<sup>10</sup> Questions for the AS-20 were patient derived through in-depth analysis of interviews with adult patients irrespective of type of strabismus.<sup>10</sup> The AS-20 has demonstrated high sensitivity, validity, and retest reliability,<sup>11-13</sup> which have been replicated by other translated versions.<sup>14,15</sup> Although previous studies have alluded to the association between different factors on strabismus-specific HRQOL scores,<sup>7,16</sup> there is little in the literature regarding factors associated with successful strabismus surgery based on HRQOL criteria. The main purpose of the present study was to investigate the factors associated with strabismus surgery success from the patient's perspective. A secondary objective was to assess any differences in pre- and postoperative AS-20 scores between different patient groups.

## Subjects and Methods

This project was deemed exempt from institutional review board approval by the Royal Free Hospital Research & Development

Author affiliations: <sup>a</sup>Royal Free Hospital, London, United Kingdom; <sup>b</sup>University College London Medical School, London, United Kingdom

Presented at the 39th Annual Meeting of the European Strabismological Association (Joint Meeting ESA/AAPOS), Porto, Portugal, September 13-16, 2017.

Submitted November 2, 2017.

Revision accepted March 4, 2018.

Correspondence: Peng Yong Sim, MBChB (Hons), BMedSci (Hons), Sheila Sherlock Education Centre, Royal Free Hospital, Pond Street, Hampstead, London, NW3 2QG, United Kingdom (email: pengyong91@gmail.com).

Copyright © 2018, American Association for Pediatric Ophthalmology and Strabismus. Published by Elsevier Inc. All rights reserved.

1091-8531/\$36.00

<https://doi.org/10.1016/j.jaaapos.2018.03.006>

Department. All procedures and data collection were conducted in accordance with the Declaration of Helsinki.

The AS-20 questionnaire is freely available with user instructions at: <http://publicfiles.jaeb.org/pedig/Misc/AS-20Questionnaire.pdf> (accessed August 31, 2017).<sup>10</sup> It contains 20 items, which are divided into two subscales [psychosocial (AS-20 $_{py}$ ) and functional (AS-20 $_{fn}$ )], each containing 10 items. Each question employs a five-point Likert-type scale for responses: “never” (100), “rarely” (75), “sometimes” (50), “often” (25), and “always” (0). Each subscale is assigned a score (minimum of 0 [worst HRQOL] and maximum of 100 [best HRQOL]) based on the mean of all the answered items within the subscale. The overall AS-20 score is the mean of the two subscale scores combined.

Consecutive adult patients undergoing strabismus surgery at the Royal Free Hospital, London, between January 2014 and December 2016 were prospectively included; all patients were seen at the clinic of the same consultant ophthalmic surgeon (SJ). As part of routine clinical practice, patients were asked to complete the AS-20 at pre- and postoperative clinics by the attending specialist orthoptist following their orthoptic assessment. The main exclusion criteria were patient age of <16 years, impaired mental capacity preventing verbal consent or completion of the AS-20, and language difficulties. Questionnaires were completed privately; no assistance was provided by the attending specialist orthoptist, who remained nearby to answer any questions about instructions and would later examine the data in the absence of the patient. All surgeries were performed by or under the supervision of the same surgeon (SJ).

In addition to pre- and postoperative AS-20 scores, demographic details (sex, age, and postcode of residence), strabismus type, presence or absence of diplopia preoperatively, magnitude of pre- and postoperative deviation, and change in deviation were recorded. In cases where manifest vertical deviation was present in addition to horizontal deviation, the individual components were treated as vector and the magnitude resultant deviation ( $|\text{dev}|$ ) was calculated using the Pythagorean theorem:  $|\text{dev}| = \sqrt{\text{vertical deviation}^2 + \text{horizontal deviation}^2}$ .

Socioeconomic status scores were calculated for all patients from postcode data using the 2015 Index of Multiple Deprivation (IMD).<sup>17</sup> The IMD, which is officially sanctioned by the UK government as a measure of multiple deprivation, combines weighted data on income, employment, health deprivation, education, housing, health, crime, and living, and provides a robust analysis of socioeconomic status. A higher score indicates an area of lower socioeconomic status.

### Statistical Analysis

The AS-20 scores were analyzed as quantitative, discrete data. Pre- and postoperative measurements were compared using the Wilcoxon signed-rank test. Any relationship between preoperative factors with pre- and postoperative AS-20 scores was investigated using Mann-Whitney test or Kruskal-Wallis test, with Bonferroni correction where appropriate. Multiple linear regression analysis was then used to compare confounding variables (sex, age, and socioeconomic status; presence or absence of diplopia preoperatively; deviation direction; and deviation size)

with pre- and postoperative AS-20 scores. Categorical data was treated as binary variables to allow inclusion in the regression analysis.

Surgical success from a HRQOL criteria point of view was classified as a pre- to postoperative change in scores exceeding previously published 95% limits of agreement (LOA) on either psychosocial or function scales (17.7 and 19.5 points, respectively).<sup>11</sup> Differences between different groups of patients in terms of HRQOL success were tested with the Fischer exact test or the  $\chi^2$  test for trend, where appropriate. Multiple logistic regression analysis (entry method) was used to examine the effect of demographic factors (sex, age, and socioeconomic status), preoperative factors (presence or absence of diplopia preoperatively, deviation direction, and preoperative deviation size), and postoperative factors (postoperative deviation size and change in deviation size) on HRQOL surgical success. To address multicollinearity for regression analyses, Spearman's rank correlations were calculated. If there was a strong correlation ( $r \geq 0.5$ ) between independent variables, separate confirmatory analyses were performed, retaining only the second of any pair of correlated factors. A  $P$  value of <0.05 was considered significant. Data analysis was performed using IBM SPSS Statistics for Windows, version 23 (IBM Corp, Armonk, NY).

### Results

A total of 87 patients (87 surgeries) with complete pre-, peri-, or postoperative data were identified for analysis. Of the 87 patients, 46 (53%) were female, with a mean patient age of  $47 \pm 16$  years (standard deviation; range, 16-83 years). The mean socioeconomic status score was  $21.7 \pm 12.2$  (standard deviation; range, 0.1-61.2), which is not statistically different from London as a whole ( $t = -1.439$ ,  $P = 0.08$ ). Median visual acuity (logMAR units) at the time of surgery was 0 (IQR, -0.08 to 0.1) in the better-seeing eye and 0.14 (IQR, 0.02-0.30) in the worse-seeing eye. Preoperative AS-20 was administered a median of 1 day (IQR, 0-11) before surgery, and the median follow-up of first postoperative AS-20 score following surgery was 57 days (IQR, 24-126).

Preoperatively, 54 patients (62%) had diplopic strabismus; the remaining 33 (38%) had nondiplopic strabismus. Overall, 55 of 87 surgeries (63%) were for childhood-onset/idiopathic strabismus, 13 (15%) for neurogenic, 10 (12%) for sensory, and 9 (10%) for mechanical strabismus. Preoperatively, 71 patients (82%) had uniplanar strabismus: 31 (36%), manifest exodeviation; 25 (29%), manifest esodeviation; and 15 (17%), manifest vertical deviation. The remaining 16 patients (18%) had multiplanar strabismus that consisted of a combination of manifest horizontal and vertical deviation. The median deviation, taking into account both horizontal and vertical components, was  $30^{\Delta}$  (95% CI, 26.1 to 33.9).

The preoperative AS-20 scores (including subscales) for different patient groups are shown in [Table 1](#). Significant differences were detected between diplopic and nondiplopic patients for preoperative AS-20 $_{py}$  ( $P < 0.001$ ) and

Download English Version:

<https://daneshyari.com/en/article/8964525>

Download Persian Version:

<https://daneshyari.com/article/8964525>

[Daneshyari.com](https://daneshyari.com)