Response Rate to One-step Operation of Exotropia with over Sixty Prism Diopters of Deviation at Imam Khomeini Hospital, Urmia

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Abstract: Information about the results of strabismus surgery conducted in accredited domestic educational and medical centers can result in knowing medical status of strabismus surgery in the country. The present study was aimed at specifying the results of exotropia surgery with over 60 prism diopters of deviation. **Method:** The present study is a descriptive-retrospective study that was conducted over two years (2007-2008) at Imam Khomeini Hospital, Orumia. Random sampling was utilized. The study consisted of forty patients who were diagnosed with symptoms of over-60 prism diopter horizontal ocular deviation of exotropia and underwent surgery. **Findings:** In the present study, 40 patients with exotropic deviation of over 60 prism diopters and with a mean age of 25.27±11.89 received resection and recession (R&R). Twenty-four patients (60%) were male and 16 (40%) were female. The operation was conducted on the right eye and the left one for thirteen (32.5%) and 7 (17.5%) patients, respectively. However, alternative exotropia was conducted for 20 patients (50%). **Conclusion:** Generally, the results of exotropia resection and recession surgery at Imam Khomeini Hospital of Orumia has been acceptable and satisfactory. However, selecting patients for operation plays an important role in reaching better results after the operation.

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Introduction

Strabismus is a term describing ocular alignment. There is no evidence on the prevalence of the disease in Iran. In the world; however, it has 1 to 4 percent separation [1 & 2]. This disease is generally classified into some types including esotropia, exotropia, V and A patterns, and hypertropia. [3]. Strabismus may occur in one or both eyes and in each direction. Among the most important symptoms of strabismus are amblyopia, diplopia, secondary contraction of the external ocular muscles, restriction of extra-ocular movement, and purview limitation. Although there is disagreement over the appropriate age of strabismus surgery [4], onset age of the disease and its timely treatment is vitally important [5]. Highlighting this issue is due to the fact that visual perception system evolves up to age 8 and after that treatment will be less effective because irreversible amblyopia will occur [6]. Yet, untreated strabismus is one of the most common causes of amblyopia [7 & 8]. other significant issues are is psychological problems caused by strabismus in the individuals and their families and also considerable reduction in the patient's life quality. Therefore, timely treatment of strabismus associates with certain improvement in the patient's life quality and confidence. In this regard, the present study investigated the response rate to exotropia with over 60 prism diopters of deviation.

Materials and Methods

The present study is a descriptive-retrospective one that was conducted over two years (2007-2008) at Imam Khomeini Hospital of Orumia. Random sampling was utilized. The study consisted of forty patients who were diagnosed with symptoms of over-60 prism diopter horizontal ocular deviation of exotropia and underwent surgery. None of the patients had the experience of strabismus operation before. Checklists were used to collect data. The collected data included onset age of disease, age of surgery, gender, involved eye (right, left, or both), initial diagnose, exotropia type (intermittent or alternate), type of surgery (bilateral lateral rectus recession, Recess/resect, and soon.), record of surgery, number of previous surgeries, deviation rate of the eyes before the operation based on prism diopter, and response to the patient's treatment.

Finally descriptive statistics (frequency percentage, mean, and standard deviation) was used to analyze the collected data through SPSS software (SPSS, version 11.5, SPSS Inc., USA). Afterwards, Chi-square and variance analysis tests were utilized to interpret the relation between the variables. Significance value was assigned at 0.05.

Results

In this study, 40 patients with an exotropia deviation of over 60 prism diopters and a mean age of 25.27±11.89 (See Diagram 4.1) underwent resection and recession (R&R) surgery. From among these participants, 24 patients (60%) were male and the rest 16 (40%) were female (See Diagram 4.2). Thirteen patients (32.5%) had their right eye involved, 7 individuals (17.5%) their left eye, and 20 patients (50%) had alternative exotropia (See Diagram 4.3).

Thirteen patients (32.5%) received surgery on two muscles (lateral rectus and medial rectus). Three muscles were operated in 19 patients (20%). And Nineteen individuals had all four muscles (2MR and 2LR) operated. Mean deviation before the surgery was 75.12±12.88 prism diopters with a minimum of 60 prism diopters and a maximum of 100 prism diopters. Patients with deviation over 60 prism diopters had indications for surgical correction of exotropia and were selected as the participant of the present research. The patients' ocular acuity was 0.825±0.08 or 8.10 and 0.868±0.09 or 8.10 before and after the operation, respectively.

After the operation, the results were classified into 3 groups: (1) over 10 prism diopters of exotropia deviation; (2) favorable results as less than 10 units of esotropia or less than 10 units of exotropia; and (3) over10 units of esotropia.

The operation was evaluated as "good" for all of the 40 patients except for one of them. As explained above in the method section, the optimum state of response to exotropia operation is less than 10 units of esotropia, orthotropia or exotropia of less than 10 units.

In one case, the patient's response to the treatment was reported as "poor". The patient was a 25-year-old girl with 80 prism diopters of deviation in the right eye before the operation. Although MR and LR were respectively shortened 6 and 7 mm, deviation of the right eye remained as 15 prism diopters. Since all the patients' response, except for one, was favorable, investigating the relation between different age groups and the response rate to the treatment was impossible.

Discussion

Explaining patients' health state and specifying their response to the treatments based on their specifications before the operation are among issues that can be dealt with in medical studies. Such studies can lead to prevention of cases that cause bad outcomes or development of methods to come up with better results. The present study was conducted for the same purpose at Imam Khomeini Hospital of Urmia.

Although strabismus can associate with numerous functional [9] and emotional [10] complications for the patient, this disease can be successfully cured in 90% of cases. Therefore, amblyopia can be controlled and prevented by timely diagnosing and treating the disease, which is vitally important in precaution [11] and as a result helps cure the infected individuals [12 & 13] and brings about remarkable improvement in their life quality [14].

Based on ophthalmologists' clinical experiences of the center, patients whose visual acuity is higher before surgery will come up with better response to the operation. The study conducted in Turkey by Abbasoglu *et al* also confirms this finding. However, the results of the study showed that favorable response was observed in all patients except for one; and studying the relation between different visual acuities before the operation and the response rate to the treatment was impossible [14]. The reason for this finding is that based aforementioned clinical experience only individuals with high visual acuity before operation volunteered for resection and recession surgery; therefore, their response rate to the treatment was higher. According to the results of the study, the level of visual acuity for both eyes was approximately 8.10 and its minimum level was 7.10. As can be seen, only individuals with high visual acuity volunteered to participate in the research.

In the study conducted by Abbasoglu *et al*, the results of exotropia treatment were better among patients who had had higher degree of deviation before the surgery [14]. The same finding has been conducted by Kushner *et al*. In the present study, due to high level of favorable outcomes, investigating the relation between deviation before the study and response to the treatment was not possible.

All the patients participated in the present study had their first experience of surgery to correct exotropia [15] while in the study conducted by Baker *et al* about 9% of the patients had the experience of the exotropia surgery [16]. This is likely because of favorable response to the treatments at Imam Khomeini Hospital and that no patient needs re-operation. Selecting specific patients for surgery can also have contribution in this issue.

Generally, the results of resection and recession surgery in treating exotropia at Imam Khomeini Hospital of Urmia are acceptable and favorable. However, selection of patients for surgery can play a significant role in achieving better results.

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