

A Study on the Frequency of Refractive Errors and the Degree of Visual Acuity Improvement by Glasses in Visually Impaired Patients

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A common cause of impaired vision and the second leading cause of treatable blindness in some parts of the world are refractive error [1]. In a study conducted by Fotouhi et al. it was found that uncorrected refractive error the most frequent and primary cause of visual impairment in the samples under study [2]. The aim of this study was to determine the prevalence of refractive errors and the exact of visual acuity improvement in these patients by prescribing glasses. In this case study, all referred patients to the low vision clinic from March 2008 to March 2009, were studied. The age of the patients ranged from 7 to 90 years old. In this study, required information included: age, gender, cause of vision impairment, type and amount of refractive error and best correction visual acuity (BCVA) in each eye. This information was obtained from the files of patients and was recorded in the research form. Complete eye examinations were performed for all patients to detect causes of visual impairment. In the first stage objective refraction with the use of autorefractometer and after that subjective refraction performed for all subjects. The BCVA in each eye was measured with Lighthouse distance acuity chart.

The improvement in visual acuity by glasses prescription was considered in 1 line, 2 lines, 3 lines and 4 lines or more. Age and sex of each patient were recorded. Myopia and hypermetropia were defined as a spherical equivalent (SE) in the better eye, 0.50 diopter (D) or more. Astigmatism was defined as more than 0.75 D of cylinder in the better eye. BCVA between 20/70 to 20/200 was considers critical for mild impaired vision, BCVA between 20/250 to 20/400 for moderated impaired vision and BCVA below than 20/400 for serves impaired vision. Statistical analysis was performed using contingency tables. The mean and standard deviation ages of patients were 45.96 ± 24.59 . In the present study 66.7%

of patients were male and 33.3% were female. Refractive error was indicated in 168 (82%) patients. The main causes of impaired vision included: age related macular degeneration (ARMD), diabetic retinopathy (DR), albinism, stargardt, retinitis pigmentosa (RP), chronic open angle glaucoma, optic atrophy, pathologic myopia and congenital cataract. There was an improvement of 1 line of visual acuity (VA) in 47 patients (28% of all patients), 2 lines in 35 patients (20.8% of all patients), 3 lines in 23 patients (13.7% of all patients) and in 18 patients (10.8% of all patients) improving by 4 lines or more. In 45 patients (26.8%) no VA improvement was shown by prescribing glasses. In a study by Sunness et al., on improvement of visual acuity by refraction in a low-vision population, there was an improvement of 2 lines or more of visual acuity in 81 patients (11% of all patients), and in 22 patients (3% of all patients) improving by 4 lines or more [3]. The results of present study indicated a higher level of improvement in VA in comparison to the study conducted by Sunness. Based on the result of this study performing refraction tests and reviewing the effect of refractive error correction on visual performance for all visual impaired patients is highly recommended.

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