

How much Change in Refractive Error will Cause a Patient to Seek Ophthalmic Care?

Paul Varner*

Senior Optometrist, John J Pershing Veterans Affairs Medical Center, Poplar Bluff, Missouri, USA

*Corresponding author: Paul Varner, Senior Optometrist, John J Pershing Veterans Affairs Medical Center, Poplar Bluff, Missouri, USA, Tel: +573-686-4151; E-mail: paul.varner@va.gov

Received date: May 06, 2016; Accepted date: May 23, 2016; Published date: May 27, 2016

Copyright: © 2016 Varner P. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Varner P (2016) How much Change in Refractive Error will Cause a Patient to Seek Ophthalmic Care?. Optom open access 1: 114. doi:10.4172/omoa.1000114

Short Communication

Incredibly, a quantifiable answer for this question could not be readily discovered in the ophthalmic corpus. Although it's likely that most providers and academic instructors could provide estimates based on clinical experience, a literature review could supply no definite answer for this basic clinical question. Even Duke-Elder (System of Ophthalmology) and Borish (Clinical Refraction) are silent on the topic. While it has been qualitatively noted that "substantial change in refractive error...can cause the patient to become aware of a change in vision" [1] and that +0.25 D or \pm 0.50 D of induced refractive error can elicit subjective visual symptoms [2,3], the amount of defocus necessary to cause patients to seek ophthalmic care has not been reported to date. The purpose of this brief report is to review observational data in order to provide an initial, quantitative answer to a basic ophthalmic question.

Consecutive patient records were retrospectively reviewed in order to locate 100 cases in which visual symptoms were the only entering complaint. The magnitude of spherical equivalent refractive error change between previously-prescribed spectacles and the current refraction was determined for each eye of those patients. Differences in refractive error were recorded as absolute spherical equivalent changes—no distinction was made between myopic vs hyperopic shift. Average changes in spherical equivalent subjective refractions were calculated independently for right and left eyes.

In each case, subjective visual blur was general in nature, not isolated to just one eye, and unrelated to ocular disease. All of these patients were over the age of 50 years, phakic, correctable to 6/6 (20/20) and free of any pathological findings or prior ophthalmic surgery in both eyes. Patients with prismatic spectacle corrections, amblyopia, or functionally or anatomically monocular subjects were excluded as were those with transient visual symptoms and/or unmanaged ocular surface disease. All subjective refractions were performed by this author.

Patients with visual complaints associated with recently-updated spectacles (i.e. "prescription checks") and those who did not wear eyeglasses full time were not included. All visual complaints were easily remediated by changes in spectacle prescription. The intent of multiple inclusion/exclusion criteria was to identify patients with purely refractive complaints. The difference in refractive error was noted separately for both right and left eyes.

The mean age for patients in this cohort proved to be 64 years. The average refractive change was 0.48 D for right eyes (range: 0 - 1.13 D)

and 0.47 D for left eyes (range: 0 - 1.25 D) eyes; standard deviations were 0.23 and 0.25, respectively. Spectacles were, on average, 31 months old at the time of these refractions. Only 7 out of 200 eyes had zero change in the eyeglass prescription (none were bilateral cases).

As a means of comparison, a similar analysis was carried out for 100 consecutive, asymptomatic patients drawn from the same clinic population, using identical inclusion/exclusion criteria and the same refractionist. Although without visual complaint, these patients typically presented for purposes of reassurance that current spectacle correction was adequate.

The mean age for asymptomatic patients was 63 years. The average refractive change was 0.15 D for right eyes (range: 0 - 0.88 D) and 0.14 D for left eyes (range: 0 - 0.63 D) eyes; standard deviations were 0.18 and 0.14, respectively. Spectacles were, on average, 34 months old at the time of these refractions. In this group, only 11 out of 200 eyes had a refractive change of 0.50 D or more (interestingly, three were bilateral cases - a situation unexpected for asymptomatic patients) (Table 1).

Summary of Average Findings	Age	Change in Right Eye	Change in Left Eye	Age of Spectacles
Symptomatic Patients	64y	1/2 D	1/2 D	31 months
Asymptomatic Patients	63y	1/8 D	1/8 D	34 months

Table 1: Summary of average findings in Symptomatic and Asymptomatic Patients.

As all retrospective data is subject to bias, these findings, too, would require prospective confirmation. Among other considerations, eye dominance and aberrometric data might be required to validate changes in refractive data. Additionally, these findings are based exclusively on visual acuity data—arguably problematic, but still the most commonly-used measure of visual function [4].

Thus, these data provide an answer to the clinical question posed at the beginning of this letter (0.50 D), and suggest that subjective reports of visual blur might be a better way to screen for strictly refractive issues than pre-set follow-up intervals.

References

1. Lee DA, Higginbotham EJ (1999) In: Clinical Guide to Comprehensive Ophthalmology. Thieme Medical Publishers: New York.
2. Miller AD, Kris MJ, Griffiths AC (1997) Effect of small focal errors on vision. Optom Vis Sci 74: 521-526.

3. Atchison DA, Schmid KL, Edwards KP, Muller SM, Robotham J (2001) The effect of under and over refractive correction on visual performance and spectacle lens acceptance. *Ophthalmic Physiol Opt* 21: 255-261.
4. Kaiser PK (2009) Prospective evaluation of visual acuity assessment: a comparison of Snellen versus ETDRS charts in clinical practice (an AOS thesis). *Trans Am Ophthalmol Soc* 107: 311-324.