

Aniseikonic lens magnification to maintain driving for patients with borderline visual acuity.

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Abstract: The loss of visual acuity often jeopardizes patients' ability to continue driving, because of regulatory standards for driving a car. This affects predominantly the elderly, those with extensive driving experience. The elderly, in whom age related maculopathy and cataract is most frequent, present the strong desire to continue driving to keep their independence. For example: to go shopping, to the doctor, or simply to go for a haircut. In a number of patients the visual acuity remains stable on a level just below borderline to meet regulatory standards for driving. In our retrospective study we evaluated the effectiveness of fitting bilateral aniseikonic spectacle lenses in a group of 21 patients with a longstanding maculopathy with or without cataract, with a stable visual acuity of at least 2 years. The average driving distance did not exceed 20 kilometres from residence and the maximum annual mileage was 4000 kilometres. In all our subjects the visual acuity with presenting spectacles and with best refractive error correction was below the level of Dutch standards to retain a drivers licence. 2 months before the driving licence test we fitted bilateral aniseikonic spectacle lenses with magnification of 9% (MultiLens[®] of Sweden). Aniseikonic spectacle lenses are lenses with extreme centre thickness to create a low magnification. These types of lenses are mainly prescribed unilaterally to compensate for image size differences in cases of anisometropia. The use of aniseikonic glasses creates a small peripheral ring-scotoma just outside the edges of the spectacle lens, identical to hypermetropia corrective lenses. The aniseikonic lenses did not restrict the visual field to a level below visual requirements for driving licensure. None of our subjects received a structured driving course. The mean visual acuity with best-corrected refraction error (standard trial frame lenses) was 0.4 (range 0.33 - 0.47). The results of our study demonstrated that it was possible in 18 of our subjects to enhance visual acuity with aniseikonic lenses to a level above the regulatory standard (0.5) and 12 of our patients completed the driving test procedure successfully.

Conclusion: 12 of 21 patients with a “just below” borderline BCVA to meet the legal visual acuity standard for driving in the Netherlands (<0.50), were able to retain possession of their driving licence with the fitting of bilateral aniseikonic glasses with a small (9%) magnification. This technique should be considered in selected patients.

Disclosure: None of the authors has a commercial interest in MultiLens[®] of Sweden, manufacturer of the lenses used in this study. Costless supply of research material for this study by MultiLens[®] of Sweden was not accepted by the authors for the objectiveness of the outcomes of the study.