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## Visual rehabilitation in patients with Age-Related Macular Degeneration (AMD): A comparative study of visual improvement in relation to educational level.

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### Introduction

Age-related macular degeneration (AMD) is a multifactorial disease and presents in a chronic progressive form, affecting the central retina (foveal region) and causing changes that go beyond those expected in the physiological process of aging, such as loss of the central visual field ( 1). AMD is the leading cause of irreversible legal blindness according to the World Health Organization (WHO) and has been one of the main causes of the impact of visual loss in the elderly around the world. Its prevalence has increased with the growth in life expectancy and the consequent aging of the population (2). Therefore, there is a high demand for low vision aids in the elderly population with AMD. Therefore, the low vision department appears to be a great help in optimizing the individual's visual residue with the use of optical aids (3).

## Methodology

Retrospective, observational and non-interventional study, through a review and evaluation of 13 medical records (26 eyes) of patients with a clinical diagnosis of AMD by the Retina Department, who were referred to the Low Vision Department (VSN) of the Hospital Oftalmológico de Brasília (HOB) for presenting some degree of visual loss.

Visual acuity was measured using an ETDRS table. From data collection, visual improvement was evaluated with the use of optical aids and correlated with the patient's level of education. To be referred to the VSN department, patients did not achieve visual acuity of 20/20 (1.0) with the use of correction. The data will be evaluated using the percentage of improvement in vision with the use of optical aids compared to visual acuity with correction without the use of optical aids.

Data collected included gender, age, education level. All patients underwent anterior and posterior ocular segment evaluations using slit lamp biomicroscopy. The diagnostic evaluation of AMD was performed using fundoscopy with a 78-diopter lens and retinography. Observation of details of macular degeneration was carried out using Optical Coherence Tomography (OCT) and evaluation by the Retina team at the Hospital Oftalmológico de Brasília (HOB).

The main variable to be compared was the presence of AMD only in intermediate and advanced stages referred to the HOB Low Vision service (Category 3 and Category 4), according to the AREDS study classification. The patients evaluated did not have other ophthalmological conditions that would justify reduced vision.

## Results

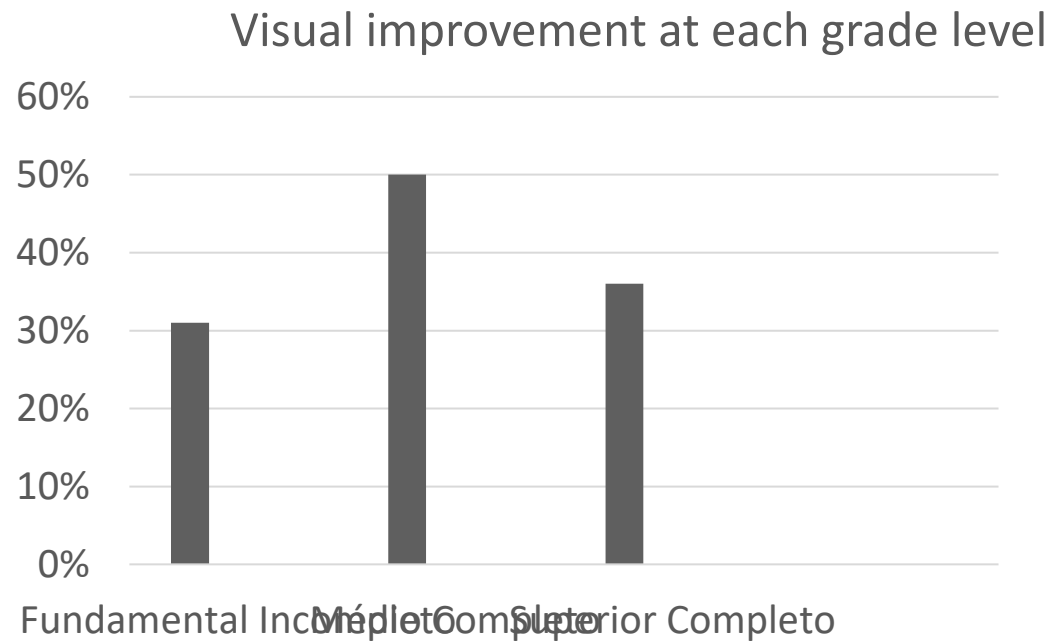
A total of 26 eyes were analyzed. Of these, 24 (92%) showed improvement in visual acuity with the use of optical aids. As a result, 2 eyes maintained the same visual acuity and no cases of worsening of VA were observed with the AO (Table 1). The overall and weighted mean improvement in visual acuity of all cases evaluated was 0.39 (39%).

Regarding education level, approximately 24% (6) had incomplete primary education, 30% (8) completed secondary education and 46% completed higher education.

<i>EL</i>	<i>CCVA</i>	<i>VAOA</i>	<i>AVI</i>
FI	0,25	0,33	32%
SC	0,2	0,28	40%
FI	0,25	0,3	20%
SC	0,05	0,05	0%
MC	0,18	0,22	22%
MC	0,18	0,33	83%
SC	0,04	0,06	50%
SC	0,35	0,45	29%
SC	0,45	0,54	20%
SC	0,02	0,05	150%
MC	0,45	0,5	11%
MC	0,7	0,7	0%
FI	0,67	0,8	19%
FI	0,25	0,33	32%
SC	0,17	0,2	18%
FI	0,2	0,3	50%
SC	0,66	0,75	14%
MC	0,18	0,22	22%
MC	0,1	0,33	230%
SC	0,05	0,06	20%
SC	0,03	0,05	67%
SC	0,1	0,1	0%
SC	0,5	0,65	30%
MC	0,3	0,4	33%
MC	0,25	0,25	0%
FI	0,5	0,67	34%

<b>SUBTITLE:</b>
EL: Education level
FI: Incomplete Elementary Education
MC: Complete High School
SC: Complete Higher Education
CCVA: Visual acuity with conventional correction
VAOA: Visual acuity with use of optical aid
AVI: Amount of visual improvement

The average improvement related to patients with incomplete primary education was 31% with the use of optical aids. In relation to patients who completed high school, there was a 50% improvement. In cases of patients with completed higher education, the average visual improvement was 36%.



## Discussion

The results of this study show the importance of visual rehabilitation in the follow-up of these patients. 92% of the cases evaluated had an improvement in visual acuity with the use of optical aids. In a study carried out by Moraes, 61 patients with AMD who used optical aids as a form of visual rehabilitation were evaluated. Of the 61 patients evaluated, 45 (73.8%) showed visual improvement with the use of assistance (8). Furthermore, a study carried out by P Virtanen et al evaluated the use of optical near aids in 65 patients with AMD. It was concluded that the majority of patients found the aids useful for reading purposes and that a simple optical device had a great impact on near vision (7). Furthermore, a study carried out by R Ballinger concluded that all 58 (100%) patients in the study demonstrated improvement in visual acuity and 52 (89.5%) showed improvement in the contrast sensitivity test (6).

No studies were found in the literature that evaluated the visual improvement of patients with AMD and related their results to education levels. In the present study, patients with higher education levels (higher education) were not those who showed the greatest improvement in visual quality, since patients with complete secondary education showed visual improvement of around 50%, compared to 36% in cases of high school education. Graduated. Patients who had incomplete primary education had the lowest rate of visual improvement, 30%, below those with complete higher education and complete secondary education. It is important to highlight that at all levels of education evaluated there was a significant improvement in the amount of vision of these patients.

Therefore, patients with progressive visual impairment without specific treatment can benefit significantly from visual resources if they are properly indicated and adapted by specialized teams.

The study shows how ophthalmologists can and should further boost the amount of visual improvement and, consequently, the quality of life of these patients.

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