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Visual acuity at presentation in the second eye versus first eye in patients affected with exudative age-related macular degeneration

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Purpose:

Patients with unilateral neovascular age-related macular degeneration (AMD) are at high risk of developing choroidal neovascularization (CNV) in their fellow eye with a cumulative incidence rate reported at 37% after 4 years of follow-up. [1]

Medical follow-up in exudative AMD has radically changed as a result of the availability of anti-VEGF therapy. In our center, the *pro re nata* (PRN) protocol is used: patients are monitored with a routine almost monthly bilateral examination, including best-corrected visual acuity (BCVA), fundoscopy and optic coherence tomography (OCT).

The purpose of this retrospective, monocentric study was to assess the difference in BCVA at diagnosis between the first and second eye involved in patients with bilateral exudative AMD.

Methods

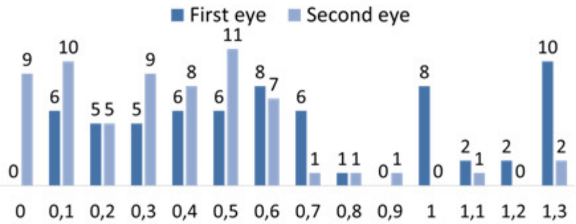
637 patients were reviewed out of 637 patients seen in our maculopathy clinic at the University Eye Clinic of Creteil for the period of January 2013.

The inclusion criteria were: unilateral exudative AMD at the beginning of follow-up in the center and a follow-up of more than 6 months. The exclusion criteria were: any maculopathy or any choroidal neovascularization other than AMD in either eye.

Data analyzed included age, sex, time interval between the first and second eye diagnosed, BCVA measured on ETDRS charts for each eye at time of initial diagnosis. Statistical analysis of BCVA between eyes was perfomed using the Wilcoxon signed-rank test.

Two groups of patients were defined depending on clinical presentation at second eye diagnosis: patients with "asymptomatic" or "symptomatic" disease. Asymptomatic disease was defined as absence of visual acuity loss (compared to last recorded BCVA), and neither scotoma nor metamorphopsia reported by the patient. Diagnosis of contralateral active CNV was based upon OCT and confirmed by angiography (fluorescein, indocyanine green or both). Comparison between the first and the second eye involved for these groups was made using the McNemar test.

Distribution of BCVA in eyes of 65 AMD patients with CNV in one eye who subsequently developed CNV in the fellow eye.



Visual function for patients who developed bilateral CNV

	First eye involved	Second eye involved	p value
Mean BCVA (logMAR) ± SD	0.68 ± 0.41 20/56	0.36 ± 0.29 20/42	<0.0001
BCVA > 20/40	11 (16.9%)	24 (36.9%)	<0.0001
Asymptomatic disease	0 (0%)	14 (21.5%)	<0.0001

Results:

A total of 264 patients were included (183 women). Mean age at the time of first examination for exudative AMD in the first eye was 76.9 years (standard deviation (SD): 7.6).

During the observation period (mean observation time of 42.5 months; range: 6-145), 75/264 patients (28.4%) developed CNV in the second eye. Mean interval for bilateralization was 30.3 months (range: 4-130). Among the patients who developed CNV in their fellow eye, 10 were excluded from the analysis: 3 patients had received treatment in the first eye before first presentation at our clinic and 7 patients whose visual acuity was performed in non-standardized conditions.

For the remaining 65 patients, at moment of initial CNV diagnosis the mean BCVA in the first eye was 0.68 logMAR (SD 0. 41), compared to 0.36 logMAR (SD 0. 29) for the second eye ($p<0.0001$).

At the time of CNV diagnosis in the second eye (65 patients), 14/65 (21.5%) were asymptomatic, and 24/65 (36.9%) had a BCVA > 20/40, whereas at the time of CNV diagnosis in the first eye no patient was asymptomatic ($p<0.0001$), and 11/65 (16.9%) eyes had a BCVA > 20/40 ($p<0.0001$).

Conclusion:

This study shows that initial BCVA for the second eye involved in bilateral exudative AMD is better compared to BCVA for the first eye involved within the context of a regularly scheduled follow-up based on macular imaging for both eyes. This monitoring may allow identification of CNV in the second eye before severe visual loss was present.

Because beginning treatment for CNV after an severe visual loss results in poorer visual outcome compared with initiation of therapy when good visual acuity is still relatively preserved [2,3], our results support the usefulness of bilateral OCT examination, even in patients affected with unilateral CNV.[2]

Bibliography:

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