

# The Importance of Vision-Related Quality of Life in Patients Treated for Neovascular AMD

Patients are not interested in telling an E from an F—they want to be able to differentiate a simple building from a work of art.

REVIEWED BY TOM S. CHANG, MD, FRCS, MHSc

**T**here is a discrepancy or a disconnect between what a patient tells a surgeon with regard to how well he or she is seeing, and what a surgeon tells a patient in terms of visual acuity.

This is according to Tom S. Chang, MD, President of the Retina Institute of California in Pasadena. He spoke in Las Vegas at Retina 2006: Emerging New Concepts, held in conjunction with the American Academy of Ophthalmology annual meeting.<sup>1</sup>

“So how can we measure success? As ophthalmologists we are very fixated on visual acuity. I want to give you three reasons why visual acuity alone is not a sufficient measure of success,” he said.

## THREE REASONS WHY VISUAL ACUITY ALONE IS NOT ENOUGH

(1) At low levels of visual acuity there is limited sensitivity in the ability to detect a difference. “Most Snellen charts in most offices have a big E at the 20/400. In this situation it becomes more a test of a patient’s cognition or memory as opposed to a test of acuity. Patients are not particularly interested in whether they can tell an E from a F. They are interested in whether they can differentiate a simple building from an art form, like a Frank Ghery-designed building.”

(2) Function overrides visual acuity in day-to-day aspects of life. As an example, Dr. Chang discussed two potential cataract surgery patients. A patient with 20/200 vision would seemingly fit the criteria for cataract surgery. And yet, if the patient has 20/25 vision in the other eye, he or she would not have trouble with activities of daily living. In

other words, function would override the visual acuity.

“Contrast that with a patient who does not meet the criteria for cataract surgery for a posterior subcapsular cataract. But he is a transplant surgeon and he is having increasing difficulty with glare at night and he often describes that he can’t see the inferior vena cava while operating on the abdomen—he then becomes a surgical candidate,” Dr. Chang said.

(3) Visual acuity does not prove better outcomes for patients. There are >1 million people in the United States who have choroidal neovascularization associated with age-related macular degeneration (AMD). “I submit to you that most of these people do not know the difference between 20/40 and 20/80. All they want to know is will they be able to read or will they be able to drive,” Dr. Chang said.

## METHOD TO PROVE OUTCOMES

Surgeons must have a system by which they can prove to health care administrators as well as legislators that what they do for patients really helps, he said. “In this way, vision-related quality of life can be like a Rosetta Stone or a dictionary that is used to translate the language we understand—visual acuity—to a language they understand.” He added that every other field outside of ophthalmology, from oncology to rheumatology to orthopedics, use quality-of-life assessments as an outcome measure.

Dr. Chang and his colleagues used the National Eye Institute’s Visual Function Questionnaire 25 (VFQ-25) to analyze patients in the Minimally Classic/Occult Trial of the Anti-VEGF Antibody Ranibizumab in the treatment of Neovascular AMD (MARINA) and Anti-VEGF

Antibody for the Treatment of Predominantly Classic Choroidal Neovascularization in AMD (ANCHOR) trials.

The VFQ-25 was used because it is considered the standard. It includes vision-related questions that specifically apply to events as they occur as a result of patients' neovascular AMD. The investigators then had to determine what a clinically meaningful difference is, with regard to the VFQ-25. "We know with visual acuity we say a clinically meaningful improvement is a three-line change. When we looked at analyses of other studies, we found that a 10-point change was equivalent to a three-line change in visual acuity.

### QUALITY OF LIFE AND RANIBIZUMAB

Dr. Chang said that each of the subscale analyses showed consistency and robustness (Figure 1). "Note that in each of them the patients treated with ranibizumab [Lucentis; Genentech, San Francisco] had a >10-point change as compared with the sham-treated patients who were observed."

The mean pretreatment VFQ-25 result was 60 (scale 0 to 100) on the near-activities subscale for patients in MARINA. "This increase represents a 30% increase over the sham in their visual function for near activities. This is something that patients can understand and administrators can understand," Dr. Chang said.

With outcomes like the abstract construct of vision-specific dependency, the only way to capture the result is by using a patient-reported outcome, he said. "In MARINA, this also had a robust and consistent result that showed a clinically significant increase. We can show that there is  $\geq 20\%$  increase in the patients' level of independence when treated by ranibizumab."

Ophthalmologists know that if a patient experiences improvement of visual acuity—even in one eye—their level of independence is improved. Quality-of-life data not only helps prove it, but helps measure it and record it so that it can be used as evidence to show that this treatment has a real impact on patients, he said.

### DOES IT MATTER WHICH EYE

Does it matter which eye is treated? Yes it does, Dr. Chang said. Vision is a binocular process, as is the VFQ-25. But in the trial, only one eye was treated.

"In the MARINA trial we were biased against having an outcome, because in >50% of the patients, the worse-seeing eye was the treated eye. When we performed subgroup analyses, we found an almost a 20-point change between the ranibizumab and sham group, if the better eye was the treated eye. That is almost a 40-point increase in visual function if the better eye was the eye that we treated."

If patients had treatment in one eye and the other eye

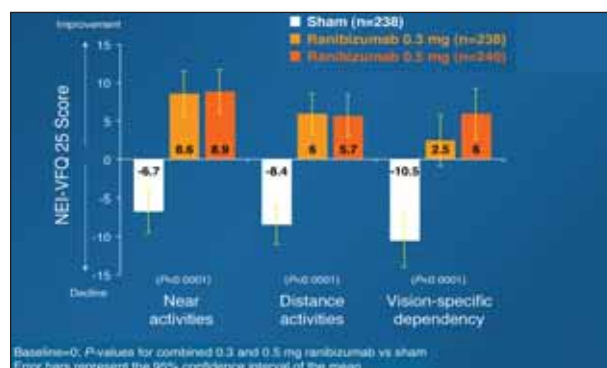


Figure 1. Mean change from baseline at 2 years.

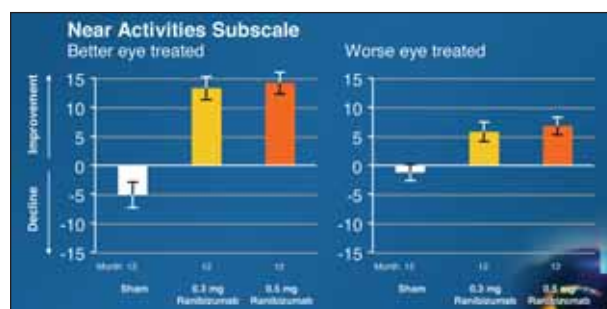


Figure 2. Better eye versus worse eye in near activities subscale: month 12.

was 20/20, patients had a clinically significant increase in vision-related function (Figure 2). "In this case it is a 20% increase in their level of function. This is important because it can be used as proof for reimbursements. If they try to tell us not to treat the first eye of a choroidal neovascular membrane, this is compelling evidence that we have an effect on our patients and their visual function.

### SUCCESS IN OUTCOMES

MARINA was the first trial ever to show that a pharmacologic agent can have an increase in patients' visual function. "All three predetermined apriory assessments of subscales all had clinically significant and statistically significant outcomes for increase in function," Dr. Chang said.

"Success in ophthalmology will continue to be much more than a black or white issue." ■

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1. Chang T. Ranibizumab (Lucentis) self-reported vision specific quality of life. Presented at Retina 2006: Emerging New Concepts. Held in conjunction with the American Academy of Ophthalmology annual meeting. Nov. 10-11, 2006. Las Vegas.