

Managing Treatment Response Following Intravitreal Therapy in Retinal Disorders

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Repeated and frequent intravitreal injections have become well established as a safe and efficacious method for managing retinal diseases, including exudative age-related macular degeneration, diabetic macular edema, and edema resulting from other causes such as vascular occlusion and uveitis. Treatment decisions are typically made based on visual acuity and morphologic and quantitative changes (usually central macular thickness) on optical coherence tomography (OCT). Treatment outcome is usually measured according to 2 important data: visual acuity and change in macular thickness (CMT). Both of these are quantitative variables with well-established reproducibility.

As the number of intravitreal injections may vary from 3-12 per year, a significantly large volume of visual acuity and CMT data are collected during the course of treatment for any given patient. Analysis of these data is important for creating a further treatment plan and for informing patients of the tangible benefits of continuing the therapy. As more and more data accumulate, it can become time-consuming and tedious to refer to all of these data.

GRAPHIC REPRESENTATION

Just as a picture is worth a thousand words, a graph is worth a hundred data points. We propose that a graphic representation of visual acuity and CMT data should become an integral part of the case sheet of patients for whom multiple interventions are likely required. We also provide a simple manner in which this representation may be considered. Both hard copies and software pro-

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grams may be utilized for this purpose.

Graphs and tables have always been important aspects of publishing data following scientific and clinical studies. These simple ways of visually depicting composite data are not in vogue for use in individual patients. We suggest that a graph and table become an integral part of the patient file of every patient who needs long-term intravitreal therapy. Simple codes for the varied treatment injections and approaches available, such as the one shown in Figure 1, would allow representation on a graph more succinctly. In the space provided for comments, one could note the presence of systemic diseases (cardiac ailment, stroke, etc.), morphologic features such as presence of neurosensory detachment, cystoid changes, and side effects such as intraocular pressure elevation.

A hard copy (printout) of the graph/table that can be easily marked to show change in quantitative values (largely CMT and visual acuity) should become a standard practice and should be filed with other information into the medical records of the patient as soon as

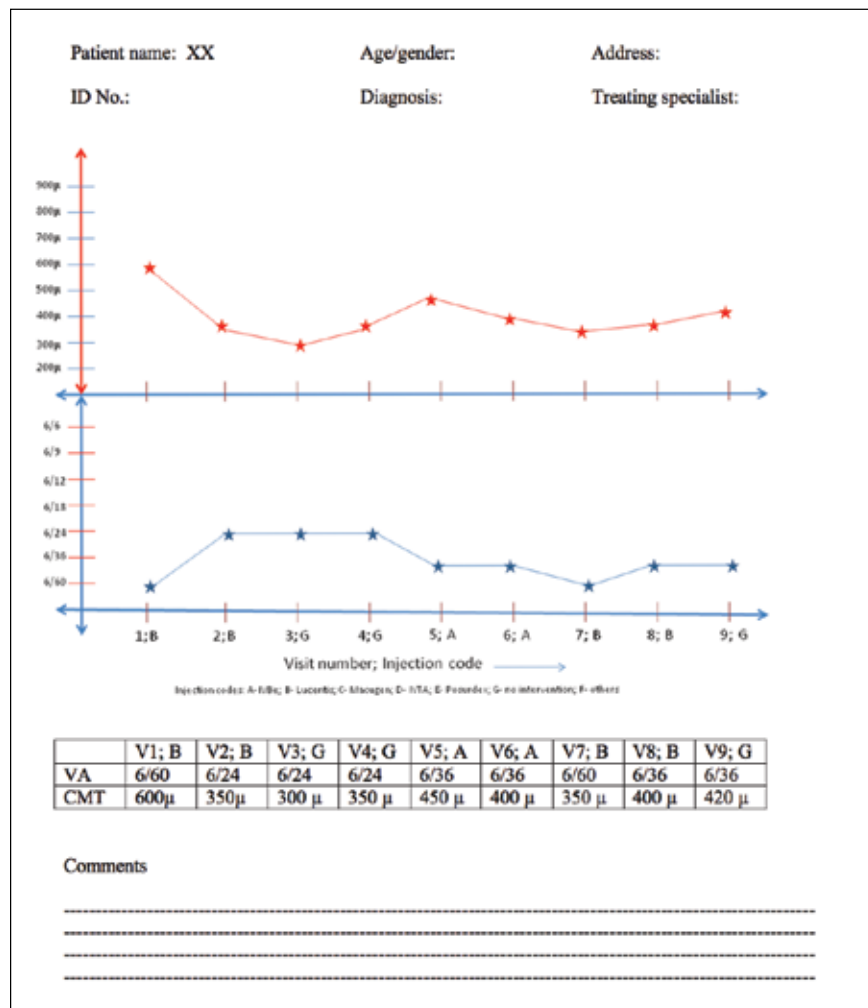


Figure 1. A sample treatment response sheet with suggested graph and table. The suggested treatment response sheet has a composite graph, a table and space for comments. The graph has been specially designed to allow depiction of visual acuity and OCT data using the same x-axis (showing visit number and treatment code). The y-axis has 2 divisions, the lower representing visual acuity changes and the upper representing changes on OCT.

treatment commences. These data could then be easily transferred to a software program and also become an integral part of any electronic medical record. These graphs and tables would allow the specialist to quickly and accurately determine important issues such as treatment response, relapse, and resistance. This would further aid in more accurate and efficient patient care, as the treating surgeon does not have to spend time turning over several sheets of past records to understand how the disease responded to earlier interventions.

The treatment response sheet of patient XX (Figure 1) reveals the pattern of interventions and the visual acuity (VA) and OCT (CMT) response during 9 visits

to the specialist. Using the code provided, one notes that the patient received 2 injections of ranibizumab (code B; visits 1 and 2). At visit 3, visual acuity had improved and CMT had decreased, so no intervention was planned (code G). At visit 4, visual acuity was maintained, although OCT showed an increase; again, no intervention was planned (code G). At visit 5, visual acuity had dropped further and OCT had worsened, so bevacizumab was injected (code A). A repeat injection of bevacizumab was performed at visit 6 as well. A look at the graph at visit 7 shows that the visual acuity dropped again, although the OCT value declined. Injection of ranibizumab (code B) was considered through visits 7 and 8. At visit 9, the patient's visual acuity had improved but not to the level of the previous improvement noted (at visit 1, 6/24), thereby suggesting the possibility of treatment resistance.

CONCLUSION

In conclusion, we encourage retina specialists to adopt a composite graphic method of representation of treatment response when multiple intravitreal injections are used to manage their patients. This is likely to help them quickly

decide on important issues such as treatment resistance and relapse and to plan further interventions accordingly. ■

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