Mansour Armaly, MD (1927-2005)

For now we see through a glass, darkly; but then face to face.
1 Corinthians 13:11

Mansour Armaly, MD, substantially changed the way an important disease, glaucoma, is conceptualized, evaluated, and treated. He did this by thinking originally, critically, and courageously and then performing research that was pertinent, well designed, and well performed. Two of his contributions have been so totally accepted and have become such an integral part of medical practice that their revolutionary natures may not be apparent to those to whom they are second nature.

Prior to Armaly’s suggestion that the nature of the optic disc should be described by comparing the width of the cup to the width of the entire disc, there was no effective way of quantitating disc changes. Others had suggested classifications, but these were either too general or too specific. The consideration of the “cup-disc ratio” became an essential part of the evaluation of patients with glaucoma. It remains a useful technique to monitor change, although now that it is known that the size of the cup is materially affected by the size of the disc, it is no longer appropriate to use cup-disc ratios as a method of staging the amount of damage that has occurred in the optic disc. Nevertheless, the quantitation of change was a huge step forward, focusing interest in studying the optic nerve and providing a clinically useful, user-friendly way to do that.1,2

As an ophthalmology resident at the start of the 1960s, I learned what all other ophthalmologists knew, specifically that when the intraocular pressure was higher than 21 mm Hg, the person had glaucoma. That was not completely tantamount to requiring that the patient be treated, but it almost was. Furthermore, we all knew that the goal of treatment was to get the intraocular pressure below 21 mm Hg. Of course there had been many who doubted the mantra, some as far back as the early 1900s when Elschnig3 commented that some people had elevated intraocular pressure but no glaucoma whereas others had glaucoma but no elevated intraocular pressure. Furthermore, depending on a variety of factors, some physicians recommended treating when intraocular pressure was higher than 24 mm Hg, others when it was higher than 27 mm Hg, and yet others by a variety of other algorithms. However, the basic principle was clear: glaucoma was elevated intraocular pressure and the goal of treatment was to lower the intraocular pressure, probably below the upper limit of the statistical normal value, specifically 21 mm Hg. I recall when Armaly, then at the University of Iowa, Iowa City, in conjunction with several others at other institutions, set up the Collaborative Glaucoma Study. Patients with elevated intraocular pressure but without visual field defects were to be enrolled and followed up without treatment. I recall, painfully, my righteous indignation that a group of academics would allow patients to get worse intentionally. But that study, and other similar ones, showed definitively that what most of us thought we knew was in fact wrong. It is worth quoting one of the conclusions from the summary report of that study:

A prospective collaborative study was conducted in 5 centers during a 13-year period to identify factors that influence the development of visual field defects (GVFDs) of open-angle glaucoma. In 5000 subjects, GVFDs developed in only 1.7% of eyes.3

The significance of this finding is still not appreciated by those in the medical profession, most of whom continue to equate elevated intraocular pressure and glaucoma. Armaly wrote a review of this study and concluded the following:

A major contribution of the Collaborative Study may be in highlighting the need to continue the search for factors—perhaps hitherto unsuspected—that influence the development of glaucomatous visual field defects.4

Armaly knew well that there was a correlation between intraocular pressure and the development of visual field defects.5 But, he was among the first to study the relationship and to point out definitively that one could not diagnose glaucoma validly merely by measuring intraocular pressure and one could not treat patients appropriately based on the concept that intraocular pressure higher than 21 mm Hg was bad and below 21 mm Hg was satisfactory.

Armaly’s work was not limited to the 2 research areas just discussed. He had a long interest in the relationship between topical cortical steroids, intraocular pressure, and glaucoma as well as in the inheritance of intraocular pressure, disc morphology, and glaucoma. He also developed a standard method of evaluating the visual field; this led to improved communication among physicians and more accurate monitoring of the course of glaucoma.

Armaly was born in 1927 in Palestine, prior to the establishment of Israel. His education was obtained at the American University of Beirut, Beirut, Lebanon, with a BSc with distinction in 1945 and an MD with distinction in 1952. He completed his ophthalmology resi-
dency training in 1955 and then went to Iowa City for a 2-year fellowship. It became immediately apparent that there was a happy match between Armaly and the University of Iowa, as both were outstanding. Armaly stayed at the University of Iowa until he was appointed professor and chair of the Department of Ophthalmology, George Washington University, Washington, DC, in 1970. His years at the University of Iowa were remarkably fruitful, starting with the development of the Des Moines Population Study, which revealed the woefully inadequate understanding of eye findings in normal persons and those with glaucoma and led directly to the Collaborative Glaucoma Study. Armaly was consistently funded by the National Institutes of Health because of the originality, soundness, and relevance of his research.

Armaly married his wife, Aida, when they were both students at the American University of Beirut. They became American citizens after they moved to Iowa City. His wife still lives in Washington, his son Fareed lives in Berlin, Germany, and his daughter Raya practices ophthalmology near Washington.

After becoming professor and chair of the Department of Ophthalmology at George Washington University, Armaly directed his energies toward administration, teaching, and patient care. A tall person with a quiet air of authority, he was comfortable with being gracious. While never reluctant to express an opinion or take a controversial position, such as the idea that visual fields could improve, he was a perfect example of a civil scholar.

Armaly must have realized the transformational effect his thinking and research had on the ways millions of people in every country in the world are examined, diagnosed, and cared for. Our view of the world is brighter and more accurate because of his brilliance in clearing away some of the darkness of that glass through which we all look.

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REFERENCES