

# The hypothesis: a way of seeing what cannot be seen

Rodrigo M. Torres

*Editor-in-Chief of OCE*

## Contact

Dr. Rodrigo M. Torres  
Consejo Argentino de Oftalmología  
Tte. Gral. Juan Domingo Perón 1479, planta baja  
(C1037 ACA) Buenos Aires  
+54 (11) 5199-3372  
romator7@gmail.com

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**A**s ophthalmologists, we are accustomed to safeguarding our patients' vision. To do so, we must perceive what cannot be seen with the naked eye—using instruments, technology, and science. We rely on methods that allow us to look beyond our physiological limits. We detect imperfections and strive to correct them. But before any of these actions take place, our minds formulate hypotheses about what may be happening, what has already occurred, or even what could occur depending on the choices we make.

Regardless of how much formal training we have in research methodology, every physician and investigator possesses an innate capacity for observation and perception—an instinct that intuitively fuels a powerful mechanism of imagination. This allows us to build potential hypotheses and envision possible pathways to solving problems. In the following paragraphs, I would like to reflect on the importance of cultivating our ability to generate hypotheses... to see what cannot be seen. These acts accompany us far beyond the clinic, the operating room, or the laboratory.

## Hypothesis 1: AIVO is always present, even when we do not see it

Before new pharmacological treatments and medical devices become available to clinicians, there is always a phase of creative inspiration and intense work carried out by teams of basic researchers. This is part of what remains unseen. The importance of making this visible was recognized by the Argentine Council of

Ophthalmology (CAO), which in early November hosted, for the first time at its headquarters, the biennial congress of the Argentine Association for Vision and Ophthalmology (AIVO). The event was organized jointly with “InVisionT,” a group dedicated to research on light and vision.

Over two dynamic days, featuring international speakers and more than 30 free papers, the CAO auditorium became a fertile ground for the emergence of multiple clinical–basic hypotheses aimed at helping us see beyond the ordinary through an interdisciplinary lens. The AIVO abstract book will soon be available as a supplement to OCE, offering readers a glimpse into what took place.

## **Hypothesis 2: Our colleagues from Bahía Blanca teach us to become better**

I recently participated in the CAO Regional Conference of Buenos Aires province, held in the city of Bahía Blanca at the CONICET facilities. Following the opening session, the current president of the Bahía Blanca Ophthalmological Association —representing not only his colleagues but also his community— shared a video recounting what had happened in March of this year, when nature struck the city and its residents with a historic flood. He also showed how everyone responded by giving the best of themselves: continuing to care for the population’s visual health while also tending to the basic needs of their neighbors and their own families.

When events like these occur, we inevitably begin to weave hypotheses about why things happen. We try to understand what occurred, to anticipate how to prevent it from happening again, and we attempt to learn. That moving video was a powerful way to open the meeting—not because it highlighted the hardship they endured, but because it revealed how they adapted to meet the needs of the moment and how they continue to do so.

I would emphasize that events such as the CAO Regional Conferences allow us to truly get to know one another and to genuinely see each other. At times, the hypotheses we form about our colleagues are clouded by biases or professional

apprehensions that blur our focus and isolate us within social networks and WhatsApp groups.

## **Hypothesis 3: In ophthalmic practice, death may be closer than we think**

When I try to encourage colleagues to engage in research, I emphasize the relevance of documenting clinical cases. I urge them to choose cases that have moved them, and I share two of my own earlier publications<sup>1-2</sup>. In both instances, the patients had passed away, and that experience motivated me to study their cases and share them academically. Those cases taught me that death is hidden in every ophthalmic consultation, behind symptoms, beneath signs, almost as if playing hide-and-seek, waiting for the moment to surface without giving us a chance to intervene.

I also learned the value of skepticism and the importance of never minimizing even a simple conjunctivitis that could turn out to be a lymphoma. From a medical–ophthalmic perspective, it becomes essential to recognize that our patients may die, regardless of their age. The eyes can conceal life-threatening systemic diseases, and we must strive to see what cannot be seen. This is where we must develop hypotheses with practical judgment, yet without restricting our imagination.

## **Hypothesis 4: The inflammation was caused by thistle spines**

Not long ago, on a Monday holiday, I went to do non-academic tasks in a rural area. As always, one of my dogs accompanied me. Chocolate—a mixed Border Collie adopted nearly ten years ago—added to the group of dogs we keep at my mother-in-law’s house. At dusk, when I had finished working, I saw him approach with his head slightly tilted to the right. I examined him and noticed that one ear was swollen. I assumed (an incorrect hypothesis) that it had been caused by the thistle spines from the area I had cleared.

The following morning, he appeared with his entire head swollen and blood marks around the

ear. Although I administered antivenom serum, nearly twelve hours had passed since the bite of a yarará snake. Chocolate eventually died. His instinct failed —perhaps because his senses were dulled, preventing him from detecting danger in the field— but also failed to think beyond what was visible. Choosing the most comfortable and seemingly common explanation (thistle spines) prevented me from considering the most critical hypothesis: a yarará bite.

## Moral of this editorial

Hypothesis 4 serves as an analogy for what sometimes happens in clinical practice, when we adopt the most comfortable and familiar hypothesis. Lacking the ability to formulate original, creative hypotheses is not uncommon, but it is something that can, and must, improve. Hypotheses are thought-structures that enable us to ask questions and design strategies to answer them. The scientific method is there to help us understand why things happen. The moment we see a patient, we generate a hypothesis about what is occurring because we are skilled observers, capable of perceiving everything around us. Yet sometimes we construct an automatic hypothesis born from routine —one that ignores our intuition, which has been shaped by experience and lived moments. At that point, the “venom” that leads us to error is already circulating. If we do not exercise our skills, we stagnate and limit ourselves to thinking only about what is obvious. These reflections aim to emphasize that applying the scientific method and evidence-based medicine fosters critical thinking, helping us become better physicians—and indirectly, better human

beings. The power to help our patients depends on our capacity to imagine that the extraordinary is possible, because fiction is always ultimately inspired by reality.

Thus, our journal *OCE* concludes a year in which, as Editor-in-Chief and together with my entire team, we have witnessed how our authors formulated the hypotheses of their work either explicitly or implicitly. It is also a year in which our journal has learned to overcome technical challenges (including cyberattacks), and in which we enhanced the international visibility of our authors by incorporating Crossref metadata for every article, allowing any electronic repository to retrieve information from the works published in *OCE*. As the year draws to a close, we look toward tomorrow with renewed energy, well-nourished to continue growing alongside you —our readers, authors, and reviewers— adapting with agility to the changes that must inevitably come.

Thank you very much, and may you all conclude 2025 on a high note and begin 2026 with new hypotheses to test or challenge. We look forward to seeing your ideas transcend through your future publications.

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