

PROJECT ABSTRACT

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<b><i>Title of Project:</i></b>	<b><i>Standardize a Surgical Training Protocol to decrease the incidence of posterior capsule rupture with vitreous loss</i></b>
<p><b>Purpose:</b> The main objective of the project is to standardize an enhanced surgical training protocol in other institutions affiliated to the Sociedad Panamericana de Retina y Vitreo (SPRV) and the University of Buenos Aires (UBA), with the purpose of providing a benefit to young surgeons of our society in their surgical training programs.</p> <p><b>Methods:</b> We published a study of our surgical training program in recognized Pan American ophthalmological journals. We have also presented our study and surgical training protocol at national and international meetings, demonstrating the benefits and better outcomes that we have obtained by standardizing our protocol during the surgical training of young surgeons.</p> <p>Through the SPRV mail list and personal relationships, we made contact with surgical instructors and chiefs of surgery to review and improve our protocol. We invited them to be part of a Pan American collaborative training group with ideas and suggestions to improve the surgical training protocol further and standardized it systematically in most of the Pan American training programs. Upon review of the protocol, we sent the final version to surgical instructors and chiefs of surgery of the Pan American training group.</p> <p>We have also standardized our enhanced surgical training protocol in other international institutions affiliated to the UBA and the SPRV.</p> <p><b>Results:</b> The final version of this surgical training protocol improved the outcomes of young ophthalmologists during their surgery learning curve, due to a lower incidence of posterior capsular rupture with vitreous loss. Consequently, we have also decreased the rate of secondary vitreoretinal complications associated such as endophthalmitis, retinal detachment, retinal tear, Irvine Gass syndrome and epiretinal membrane.</p> <p>Annex 1: We have analyzed the records of 265 cases of phacoemulsification surgery performed by second and third year residents of our Institution affiliated to the University of Buenos Aires. We have evaluated and compared the rate of complications in phacoemulsification between the surgical cases from a group of residents trained before the systematic application of our surgical protocol in the technique of cataract surgery during their learning curve of phacoemulsification (academic years 2017 through 2018) with those from a group of residents who were trained with our enhanced surgical training protocol (academic year 2019). We have observed an incidence of posterior capsule rupture of 15% in the first group versus 4% in the group trained with our enhanced surgical protocol.</p> <p>Annex 2: Enhanced Surgical Training Protocol:</p> <p>Consists of always and systematically performing the following maneuvers during the phacoemulsification of the last nuclear fragment:</p> <ol style="list-style-type: none"><li>1) Remove the phaco handpiece from the anterior chamber to fill the capsular bag completely with viscoelastic under the last nuclear fragment.</li><li>2) Decrease all phacodynamics parameters settings: reduce 30% of ultrasound energy, 20% of vacuum and 20% of flow rate.</li><li>3) Increase 20 mmhg of the irrigation pressure by raising the height of the BSS bottle.</li></ol>	

Finally, we have also observed that our rate of capsular rupture decreases during the irrigation/aspiration (I/A) of the cortex with the bimanual I/A technique compared to the unimanual I/A technique.

**Conclusions:** Prevention is the Best Medicine. The aim of preventive medicine is preventing the occurrence of a disease and averting resulting complications after its onset.

A statistically significant decrease in the incidence of posterior capsule rupture in cataract surgery and postoperative complications was observed when implementing a standardized surgical training protocol during the learning curve of young surgeons from Pan American surgical training programs.

The Pan American collaborative training group expressed the idea that increased regional participation and collaboration to update and develop a prospective and multicenter study for training surgical programs will be mutually reinforcing.