

Whitestar Signature With Fusion Fluidics

New features create an individualized surgical experience.

BY WILLIAM J. FISHKIND, MD

I strive to preserve the safest and most stable surgical environment for my patients. For that reason, I am always eager to test new phaco technologies. In general, the trends in this area are focused on using less energy with more power modulations. Lowering the amount of energy entering the anterior chamber during surgery decreases the chances of damaging the blood/aqueous barrier and reduces postoperative inflammation. Upgrades to the Infiniti Vision System (Alcon Laboratories, Inc., Fort Worth, TX), the Millennium microsurgical system (Bausch & Lomb, Rochester, NY), and the Sovereign with Whitestar technology (Advanced Medical Optics, Inc., Santa Ana, CA) push toward preocclusion phacoemulsification, the ability to emulsify the nucleus without occlusion.

Recently, I have had the opportunity to work with the Whitestar Signature System with Fusion Fluidics (Advanced Medical Optics, Inc.) (Figure 1). I have found it easy to use and customize, and the unit optimizes intraoperative safety to help maximize surgical outcomes. The system features a number of significant improvements on the original unit. A notable example is the Fusion Dual Pump Fluidic system, which provides improved irrigation and higher flow and vacuum capabilities under the control of the company's proprietary Occlusion Mode and Advanced Chamber Stabilization Environment (CASE) technology. These functions work together to better stabilize the anterior chamber. Details on the Whitestar Signature System with Fusion Fluidics follow.



Figure 1. The Whitestar Signature System with Fusion Fluidics.

FUSION FLUIDICS AND ADVANCED CASE TECHNOLOGY

Micropulsed phaco technology can be programmed to halt occlusion surge, which causes a sudden shallowing of the anterior chamber that may lead to tears in the capsule and vitreous face. I consistently perform phaco procedures that use preocclusion phacoemulsification, because it increases safety. The upgrades of the Whitestar Signature System are of significant help in this area. The machine sets limits over parameters the surgeon could not control previously. For example, by eliminating inadvertent occlusion, the Advanced CASE technology protects the anterior chamber. Designed for enhanced chamber stability, this automatic control

monitors vacuum during phacoemulsification and gives surgeons the ability to choose their occlusion threshold and adjust it as needed. I can vary my rise times individually and change the timing on the pump to speed up or slow down to suit the surgery. During phacoemulsification, the Advanced CASE function actually reduces vacuum when occlusion occurs, maintains particle-holding power, and resets the maximum vacuum when occlusion ceases.

What I find particularly beneficial about the Advanced CASE technology is that it is easy to use during surgery. I can select the threshold where it begins to function and the duration of time for occlusion to occur as well as when the vacuum will drop and for how long. Using the four variable settings, I can set the technology for the parameters that work best for me and customize the surgery to the circumstances (eg, dense cataract, dark nucleus). Advanced CASE technology offers me the flexibility necessary to

accommodate the cataract, the patient, and my own surgical technique.

NEWLY DESIGNED PUMPS

New pumps on phaco systems are what I call *hybrids*. The Whitestar Signature System is the only phaco platform that allows the surgeon to use a peristaltic or a Venturi pump, a choice that provides flexibility during surgery. The



Figure 2. A wireless foot pedal is an option with the new phaco unit.

phaco machine's aspiration capabilities include a peristaltic flow of up to 60 mL/min, a peristaltic maximum vacuum of 650 mm Hg, and a Venturi vacuum of up to 600 mm Hg. In addition, the Whitestar Signature System features improved irrigation with a bottle height of up to 106 cm without extension.

Thus far, I have found the unit's Fusion Fluidics pumps to be quite responsive. They demonstrate strong tuning and more recognition of internal fluctuations in pressure compared with the Sovereign cataract extraction system (Advanced Medical Optics, Inc.). The processing unit of the machine provides a virtual representation of the internal chamber, recognizes changes in vacuum and flow, and makes continuous adjustments accordingly.

ADDITIONAL FEATURES

I have found moving between menus on the Whitestar Signature System's touch screen to be user friendly and simple, and the wireless foot pedal (Figure 2) reduces the number of cords below the operating table. In addition, the system primes quickly, which saves a significant amount of time in surgery. Overall, I find the system to be much easier to use than many other phaco machines because of its intuitive operation and extensive number of individualized options.

CONCLUSION

Modifications to the original Whitestar platform have improved procedural efficiency and lessened the amount of power delivered to the anterior segment. The benefits of the Whitestar Signature System include enhanced stability of the anterior chamber, a lower incidence of torn posterior capsules and other complications, and improved outcomes. ■

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