Charging-Up Surgical Devices

Electrosurgical devices require an energy platform to generate the power necessary to function properly. Working closely with surgeons on the design, a device maker has introduced a unit to provide exactly the type of control and power needed for these surgical tools. This article reviews the benefits of this new offering.

By Bryan Hanson
In November 2006, Valleylab, a division of Tyco Healthcare Group LP and the market leader in advanced energy-based surgical systems, announced the launch of the ForceTriad, a new, integrated energy platform for electrosurgery (a mode of surgery that uses electric sparks to focus intense heat at the surgical site in order to divide tissue).

Device Capabilities

The ForceTriad energy platform is a full featured electrosurgical generator intended for open and laparoscopic surgical procedures where the surgeon requires electrosurgical cutting, coagulation, bipolar functionality, or vessel sealing (tissue fusion). Often, electrosurgical generators are able to produce a variety of electrical waveforms. As these waveforms change, so do the corresponding tissue effects.

View of Vallylab's
ForceTriad energy platform

The Force FX electrosurgical generator has a standard 'cut' setting (low voltage/less thermal spread than blend, dividing tissue with little hemostasis, or stoppage of blood flow), 'blend' (more thermal spread than cut with more hemostasis), and 'coag' setting (high voltage with more thermal spread than blend, used to coagulate tissues). Instant Response technology adjusts voltage in 'cut' and 'blend' settings, providing surgeons with improved performance at lower power settings. This increased control minimizes the risk of tissue damage and neuromuscular stimulation, and decreases the need to "turn up the generator." Instant Response

allows consistent effects across all tissue types.

Innovating Electrosurgery

When developing the energy platform, Valleylab worked to combine new dimensions of performance, resulting in a unique product. The updated Ligasure technology provides improved tissue-sensing and closed-loop control for faster and more consistent tissue and vessel fusion. This technology is capable of sealing vessels up to and including 7.0 mm. It also fuses lymphatics and tissue bundles as large as will fit in the jaws of the instruments.

In the past, operating rooms needed separate pieces of equipment to achieve different tissue effects: monopolar, bipolar, and vessel sealing. The energy platform combines all three into one central platform, making setup simpler and saving space in operating rooms.

Developing the Design

The design of the energy unit is the result of a collaboration between Valleylab and surgeons to develop a system that yields less tissue damage for patients. The design process was an integrated, flexible approach that included all functional areas: engineering, clinical, reliability, procurement, regulatory, marketing, and quality. It was in 2005 that the device received FDA 510(k) concurrence.

Market Response

Since its launch in October 2006, the company has shipped over 1,300 systems worldwide. The unit's automatic instrument recognition and other intuitive features have been well received in the medical device marketplace, especially since surgeons can potentially shorten their operating room procedure time by being able to control power and mode adjustments from the sterile field.

"The ForceTriad energy platform provides the surgeon improved tissue effect with consistent power delivery," said Barbara Levy, MD, medical director for the Women's Health and Breast Center, Franciscan Health System. "This energy platform will assist in improving focus on the procedure and perioperative efficiency."

ONLINE

For additional information on the technologies and products discussed in this article, visit Valleylab at www.valleylab.com [1].

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