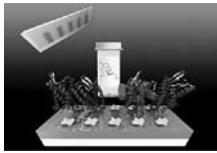


TRENDS & TECHNOLOGY

Electronic μ -Opioid Sensor

A lot of the mechanisms of the drugs anesthesiologists use are poorly understood. To help in uncovering how opioids operate, researchers at University of Pennsylvania developed a completely electronic μ -opioid sensor protein that was modified to be soluble in water in order to make it practical for lab work. It was then bound to a graphene substrate that acted as a field-effect transistor capable of detecting its electric properties when the μ -opioid receptor is activated. This will allow to mass-produce devices that could be useful in drug development and a variety of diagnostic tests.

<http://www.upenn.edu/pennnews/current/2014-05-01/latest-news/cyborg-sensor-could-unlock-anesthesia%E2%80%99s-secrets>



An illustration of the researchers' devices

E-Cube 7 Ultrasound for Anesthesia



Alpinion Medical Systems (Seoul, Korea) has unveiled its new E-CUBE 7 ultrasound system. The device is designed to be used during regional anesthesia procedures and pain blocks. Besides regional block applications, the E-CUBE 7 can be used in many of the procedures in which general ultrasound imaging is needed.

<http://www.medgadget.com/2013/05/alpinion-e-cube-7-ultrasound-for-anesthesia-needle-placement-general-clinical-use.html>

Teleflex ISO-Gard Mask

ISO-Gard anesthesia mask recovers much of the exhaled gas and sends it to the vacuum exhaust. The system works by running oxygen through the breathing area in one direction while exhausting using a negative pressure tube at the bottom of the mask, effectively separating the inhaled gas from the exhaled. Has a CO₂ monitoring port for sampling expired gas and fits into existing PACU workflow. Delivers up to 10 LPM of oxygen flow



PharmGuard Anesthesia Software Service (P.A.S.S.)



Smiths Medical (St. Paul, Minn.) announced a new service, specifically aimed at anesthesia and critical care for its popular Medfusion 3500 syringe infusion pump.

P.A.S.S. offers "anesthesiologists and pharmacists with the convenience of a customer-specific drug library entered into their Medfusion® 3500 syringe infusion pumps prior to shipping the pumps to them". Extensive drug libraries support standardization of drug concentrations throughout the facility. Displays full drug name (brand and generic) in Tall Man lettering. Drug Advisories provide essential drug information for medication administration at the point of care

<http://www.medgadget.com/2011/09/smiths-medical-pharmguard-anesthesia-software-service-p-a-s-s.html>

Automatic Anesthesia Drug Delivery

A team of French anesthesiologists has developed an automatic delivery system of propofol and remifentanyl, which they recently tested in a multi-center trial involving 196 surgical patients. The researchers reported in *Anesthesia & Analgesia* that the system, which uses a Bispectral Index (BIS) monitor as a guide, performed better than manual administration.



It is a proportional-integral-derivative controller allowing the closed-loop co-administration of propofol and remifentanyl during induction and maintenance of general anesthesia.

http://www.medgadget.com/2011/03/system_automatically_delivers_anesthesia_medications_during_surgery.html

Mindray A5 Anesthesia Device



Mindray, Shenzhen, China has launched anesthesia device that sports uncommon options such as a 15" touch screen, as well as a central brake and an integrated cable sweeps for mobility. A5 is the first and only anesthesia machine that conforms to the IHE (Integrating the Healthcare Enterprise) Patient Care

Domain (PCD) profile. At no additional charge, every A5 provides data output in the industry standard HL7 protocol. HL7, with the IHE PCD profile, is recognized among anesthesia information management systems (AIMS) and electronic medical records (EMR) systems as the demonstrated industry standard for unambiguous interoperability.

http://www.medgadget.com/2011/02/mindray_a5_anesthesia_device_gets_cleared_in_us.html

The Latest Buzz in Pain Medicine (INTERVIEW)

Dr. Baxter has developed a simple, yet effective tool she for pain relief called "Buzzy." There's been a lot of, well, *buzz* about the device ever since she pitched it on *Shark Tank*. By manipulating the physiology of "gate control" with high frequency vibration and ice packs, Buzzy simulates the same pain relief as water over a burn. Other sensations are more important to the brain, so the relatively unimportant continuous pain alert is blocked out.



<http://www.medgadget.com/2014/06/the-latest-buzz-in-pain-medicine-interview.html>

Myoelectric Controlled Avatar for Phantom Limb Pain



Phantom limb pain is currently treated with several different methods. Examples include mirror therapy, different types of medication, acupuncture and hypnosis. In many cases, however, nothing helps. Researchers at Chalmers University of Technology in Sweden decided to test whether they can fool the brain into believing the limb is still there and maybe stop the pain.

They attached electrodes to the skin of the remaining arm of an amputee to read the myoelectric signals from the muscles below. Additionally, the arm was tracked in 3D using a marker so that the data could be integrated into a moving generated avatar as well as computer games. The amputee moves the arm of the avatar like he would if his own still existed, while the brain becomes reacquainted with its presence. After repeated use, and playing video games that were controlled using the same myoelectric interface, the person in the study had significant pain reduction after decades of phantom limb pain.

<http://www.chalmers.se/en/news/Pages/Phantom-limb-pain-relieved-when-amputated-arm-is-put-back-to-work.aspx>

Interview with Pain Squad Creator, Jennifer Stinson