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Christopher F Tirotta

Nicklaus Children's Hospital, USA

Liposomal bupivacaine: A novel long acting local anesthetic

Post-operative pain control continues to be a problem in surgical patients. A novel formulation of an ultra-long acting local anesthetic is now available in the US: Exparel or liposomal bupivacaine. Liposomal bupivacaine is made up of microscopic polyhedral particles. The liposomes encapsulate the drug, bupivacaine hydrochloride, without altering molecular structures. This provides a reliable low dose release of the bupivacaine over time, providing long-lasting, post-surgical pain relief over the course of 2-3 days. This eliminates the need for titration of a single dose or the need for external devices or pumps to prolong analgesia. Plasma bupivacaine levels may persist for 96 hours after injection. Peak plasma concentrations are lower in magnitude and occur later in time than after a similar injection with bupivacaine HCl. Plasma bupivacaine concentrations are not correlated with local efficacy. Safety profile was evaluated in 10 clinical trials in patients undergoing a variety of surgical procedures. Most common adverse events were nausea, constipation and vomiting. Exparel demonstrated a favorable cardiac profile. There was no cardiac toxicity and no QTc prolongation, even supra-therapeutic doses. Rate of absorption is dependent on total dose administered, route of administration and vascularity of the surgical site. Efficacy has been established. Multiple trials demonstrated a significant reduction if pain intensity scores and a reduction if overall opioid consumption compared to placebo. Liposomal bupivacaine is a safe and effective novel new drug to treat post-surgical pain.

Biography

Christopher F Tirotta has been an active member of Miami Children's Hospital Medical Staff since 1991, practicing in the Department of Anesthesiology. He has served as the Director of Cardiac Anesthesia since 2002. He also works in the Department of Anesthesiology at the University of Miami. He received his BA from Cornell University in 1982 and his MD from New York University School of Medicine in 1986. He also received an MBA degree from Columbia University in 1999. He completed his Internship in Internal Medicine at SUNY at Stony Brook in 1987. He completed his Residency training in Anesthesiology from the University of Miami/Jackson Memorial Hospital in 1990. He is sub-specialized in Pediatric and Cardiovascular Anesthesia, including Heart Transplantation. He has been the Principal Investigator on a number of clinical drug/device trials, including on the ONQ Pain Buster, the muscle relaxant Zemuron, the procoagulant RiaSTAP, the Cardiotronic NICOM device and the AirPurge.

christirotta@att.net

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