Exparel & Regional Anesthesia
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What is it actually?

Liposomal bupivacaine
Microscopic spheres
Drug delivery mechanism

Mechanism of action

Multi-vesicular microscopic spherical particle
Numerous internal chambers
Separated by single bilayer lipid membranes
Stable at refrigeration temperature
Progressive dissipation in vivo
Pharmacokinetics

Peak plasma concentration
Time to maximum plasma concentration
Terminal elimination half life
Primarily hepatic metabolism for the active components
Renal excretion
Max plasma concentration

Max plasma concentration

Plasma levels of bupivacaine may persist for 96 hours.*

*Data from TKA study.

Efficacy

Original studies

- Bunionectomy
- Hemorrhoidectomy

New industry studies

Independent studies
Safety profile

Mild side effects
Labeled as TEAE (treatment emergent adverse effects)
Nausea, constipation, and emesis
Intravascular injection
Wound healing

Safety and Side Effect Profile of Liposome Bupivacaine (Exparel) in Peripheral Nerve Blocks Ilfeld et al.

Safety profile

Errors in delivery

• Look alike
• Similar size
• Direct administration
Uses in regional anesthesia

Obstetrical surgery
  • TAP, rectus sheath

Orthopedic surgery
  • PNB? Adductor Canal, Femoral?
  • Intra-articular, wound infiltration by surgeon

General surgery
  • TAP, rectus sheath, subcostal

Breast surgery
  • Paravertebral, PECS I & II
Use in peripheral nerve blocks

No evidence of nerve injury following single shot PNB with Exparel

Numerous phase 3 trials in process

Case reports have shown good results

Results are optimistic… but to a certain degree

• Studies have been small, incidence of nerve injury is very low
• No long term studies yet
A 4-Day Peripheral Nerve Block? Liposome Bupivacaine: An Introduction and Update, Brian M. Ilfeld

From ASAHQ.org

Wound infiltration

Epidural administration

Peripheral Nerve Blocks

http://www.asahq.org/resources/publications/newsletter-articles/2014/august-2014/a-4-day-peripheral-nerve-block
Liposomal bupivacaine for regional anesthesia, Uskova A and O’Connor JE

Studies lack adequate power

Appears to be safe

Does not show superior clinical results
Disadvantages in PNB

Lack of surgical anesthesia

Inferior short term analgesia

Inability to titrate effect

Unclear long term side effects or injury

Animal models show peri-neural granulomatous inflammation

MOST IMPORTANTLY, NOT YET APPROVED FOR PNB
Correct usage in the OR for surgeons

25 gauge or larger needle

Invert to re-suspend solution, do not agitate

Injected in multiple aliquots slowly into deep soft tissue with frequent aspiration

Wait 20 minutes before administering any other local anesthetics into the site

Can use bupivacaine up to a max of 50% of Exparel dose

Additive toxic effects
Usage for Anesthesiologists

Same caution as with other local anesthetics

In case of intravascular injection

Typically in abdominal blocks

• Can be mixed with sterile saline to make 40-80 ml
• Delivered in large depots

Case reports and studies of injection into nerve sites
Things to consider:

Cost

Efficacy

Availability of other pain control modalities

Alternate long acting modalities

- Dexamethasone
- Indwelling catheters


viii. Reet Lawhon, Robert LaCivita, John Fanouse, Dennis Feierman.. Off Label Use of Exparel in an Axillary Block for Prolonged Postoperative Analgesia. OJAnes> Vol.5 No.7, July 2015

