Liposomal Bupivacaine for Pain Control After Anterior Cruciate Ligament Reconstruction

SCIENCE

Abstracts

Key Take-Away:

Liposomes are spherical, small dimension nanovesicles including in a phospholipidical double layer. Bupivacaine is a synthesis derivate, with chemical configuration similar to the first local anesthetic ever found, that is, cocaine. This study has explained how liposomal bupivacaine, which is FDA approved for single dose wound infiltration is useful in postoperative pain relief among patients.

Local anesthetics are commonly administered into surgical sites as a part of multimodal pain control regimens.

ABSTRACT:
Background:

Local anesthetics are commonly administered into surgical sites as a part of multimodal pain control regimens.

Liposomal bupivacaine is a novel formulation of bupivacaine designed for slow diffusion of a single dose of local anesthetic over a 72-hour period. While early results are promising in various settings, no studies have compared pain management regimens containing liposomal bupivacaine to traditional regimens in patients undergoing anterior cruciate ligament (ACL) reconstruction. To evaluate liposomal bupivacaine in comparison with 0.25% bupivacaine hydrochloride (HCl) for pain control after ACL reconstruction.

Expand section

Methods:

A total of 32 adult patients undergoing primary ACL reconstruction with soft tissue quadriceps tendon autograft between July 2014 and March 2015 were enrolled.

All patients received a femoral nerve block immediately before surgery. Patients then received either a 40-mL suspension of 20 mL Exparel (1 vial of bupivacaine liposome injectable suspension) and 20 mL 0.9% injectable saline or 20 mL 0.5% bupivacaine HCl and 20 mL 0.9% injectable saline, which was administered into the graft harvest site and portal sites during surgery. Patients were given either a postoperative smartphone application or paper-based journal to record data for 1 week after ACL reconstruction.

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Results:

Of the 32 patients recruited, 29 patients were analyzed (90.6%).

Two patients were lost to follow-up, and 1 was excluded because of a postoperative hematoma. There were no statistically significant differences in postoperative pain, medication use, pain location, recovery room time, or mobility between the 2 study groups.

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Conclusion:

There were comparable outcomes with 0.25% bupivacaine HCl at a 200-fold lower cost than liposomal bupivacaine.This study does not support the widespread use of liposomal bupivacaine for pain control after ACL reconstruction in the setting of a femoral nerve block.

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