Abstract

DepoFoam® bupivacaine (DB; EXPAREL™; Bupivacaine Liposome Extended-Release Injectable Suspension) exhibits pharmacokinetic properties consistent with sustained-release characteristics.

Introduction

Local anesthetics are commonly used as a part of a multidisciplinary therapy for pain management. Bupivacaine, which has been shown to relieve postoperative pain, is a highly lipophilic and long-acting local anesthetic, but limited to a duration of 1 to 2 h in a single injection. DepoFoam® is a proven delivery technology that encapsulates drugs without altering their molecular structure and then releases them over a desired time period (1). DB=DepoFoam bupivacaine.

Methods

A summary of the pharmacokinetic parameters of DB and bupivacaine HCl, exposure in Dentayed-release injectable suspension (DRIIS) and conventional formulations is presented in Table 1. The therapeutic index of bupivacaine is 10 to 20 for plasma concentrations of 1 to 2 µg/mL. DB=DepoFoam bupivacaine.

Results

Conventional formulations have a short duration of action, while also including extraliposomal bupivacaine for rapid absorption into the systemic circulation, thereby eliminating time to onset concerns. These data indicate DB can be used in a variety of soft tissue and bony surgeries. DB=DepoFoam bupivacaine.

Discussion

Although bupivacaine HCl is one of the most commonly used local anesthetics, its 1 to 3 h duration of action necessitates the use of additional therapeutics to manage pain. DB=DepoFoam bupivacaine.

Conclusions

Bupivacaine is an extended-release multivesicular liposomal formulation of bupivacaine HCl. It is formulated to provide the longer duration of efficacy and lower plasma concentrations characteristic of sustained-release formulations. DB=DepoFoam bupivacaine.

References

1. Marcaine [package insert]. Hospira, Inc., Lake Forest, IL, 2009. 2. DepoFoam® is a proven delivery technology that encapsulates drugs without altering their molecular structure and then releases them over a desired time period (1). DB=DepoFoam bupivacaine.

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