

## Lidocaine Patches for Post Operative Pain Management

Lidocaine patch application can be a powerful analgesic adjunct to existing analgesic agents including opioids and nsais, in a multimodal pain management scheme.

Pharmaceutical lidocaine patches contain 5% lidocaine. The patch is self adhesive following removal of the liner. The patches measure 10 x 14cm and contain 700mg of lidocaine (50mg of lidocaine per gram of adhesive patch). The patches are clean but not sterile. Lidocaine is not a controlled substance but a prescription is needed to obtain the patch. 4% lidocaine patches are now readily available over the counter. I am not aware of any studies comparing the effectiveness of the 4% patch to the 5% patch.

### Lidocaine Patch vs Fentanyl Patch

\* Because systemic absorption of lidocaine from the patch is low, lidocaine patches have potentially less severe systemic effects than fentanyl patches. Lidocaine patches act locally through topical absorption and systemic concentrations of lidocaine are very low. Fentanyl patches deliver the drug transdermally for systemic absorption. The greater the systemic absorption of fentanyl from the patch, the greater the systemic side effects and potential interactions with other drugs. Several studies have revealed a 30-50% dissatisfaction rate by owners with fentanyl patch use in dogs. Dysphoria, vocalization, anorexia, and lethargy are the most common complaints.

\* Lidocaine patches have a much shorter onset of pain relief versus fentanyl patches – approximately 30 minutes for lidocaine compared to up to 12 hours for fentanyl.

\* Lidocaine patches must be applied close to the site of pain to function locally whereas fentanyl patches can be applied anywhere on the skin for systemic uptake.

\* Unlike fentanyl patches, lidocaine patches may be cut to fit the size of the patient or the site of application without affecting the drug delivery system. Cutting fentanyl patches can disrupt the delivery system resulting in increased and uncontrolled delivery of the drug.

\* Lidocaine patches are much less expensive than fentanyl patches

\* Unused cut portions of lidocaine patches can be stored and used on other patients.

\* Lidocaine patches can be used on cats with minimal risk of lidocaine toxicity

\* Lidocaine patches are less likely to be affected by skin and body temperature than fentanyl patches.

For surgical cases, lidocaine patches should be applied at the end of the procedure following skin closure. Because the patches are nonsterile, a non-adherent sterile pad or gauze should be applied over the surgical wound prior to patch application. Before application the patch should be cut to the length of the surgical incision and the protective back liner removed. The lidocaine patch is self-adhesive. After the skin has been closed and the area of patch application cleaned, cut patches are applied to each side of the incision to alleviate skin and deeper tissue pain following the surgery. A surgical film can be used to cover the entire area including the lidocaine patch and non-adhesive pad. Alternatively a bandage can be applied to cover and secure the patch.

Lidocaine patches appear to provide an analgesic effect for up to 72 hours in most cases. The analgesic

effect can extend deep into muscle and other soft tissue structures. Lidocaine patches affect pain transmission impulses only. They do not affect cutaneous sensation or motor function.

The following dosing guidelines are based on pharmacokinetic studies and clinical observations. The patch should be cut to the length of the surgical incision and applied to both sides. If the surgical incision is irregular (an amputation for example), the patch can be cut into several small pieces and applied around the incision for maximal dermal exposure. The key to dosing is to remember that the patch acts locally and the drug is not absorbed systemically. Therefore the patch must be applied near the surgical site and cover the area where pain is to be alleviated.

Lidocaine Patch(10x14cm) Dosing Guidelines for Dogs and Cats

<u>Body Weight (kg)</u>	<u>Patch(es)</u>
1.4-2.3	1/6-1/4
2.7-4.5	1/2
5-9.1	1
9.5-18.2	2
18.6-27.3	2.5-3
27.7-45	3-4