Decreased Opioid Utilization with Lidocaine Topical System 1.8% Compared to Lidocaine 5% Patch: A Retrospective Claims Analysis

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BACKGROUND

Lidocaine topical system 1.8% (LTS [ZTlido®]) and lidocaine 5% patch (LP [Lidoderm®]) deliver equivalent doses of lidocaine, though LTS's bioavailability surpasses LP's by over 10 times.

The novel composition and design of LTS has demonstrated significantly better adhesion performance than branded and generic LP in comparative clinical studies (LTS 89%, generic LP 27%). As a result, lidocaine patches that adhere poorly may result in suboptimal pain management and potentially increased opioid usage.

Studies have demonstrated that treatment with lidocaine patch can reduce opioid usage. This is the first head-to-head analysis of two formulations of lidocaine patch, LTS and LP, evaluating their effectiveness in the reduction of opioid utilization in patients with neuropathic pain.

PURPOSE

Using US administrative claims from the Optum claims database, evaluate the impact of LTS and conventional LP on opioid usage before and after initiation of the patch treatment.

METHODS

Table 1. Cohort Definition and Analytical Design

Data Source	Optum Claims Data
Study Time Period	May 1, 2018 – September 30, 2023
Index Event	First prescription for LTS or LP
Eligibility Criteria	- 6 months of pre and post-index continuous medical and pharmacy coverage - At least 1 claim for an opioid drug of interest between October 1, 2018 – Sept 30, 2023
Inclusion Criteria	- Diagnosis in the pre-index period with post-herpetic neuralgia (PHN), diabetic peripheral neuropathy (DPN) or lower back pain (LBP) - Patient must be at least 18 years of age at index
Cohorts (index therapy)	LTS LP

Comparisons of count data in pre and post-index settings were made with the Wilcoxon signed-rank test.

A zero-inflated random coefficient model with a log-normal distribution was used to determine if there was a statistical difference in change from pre to post –index count between LTS and LP.

Chi-Square Test was used to test differences in proportion of patients who had decrease/discontinuation of opioids between LTS and LP

Opioid utilization measured as MME

RESULTS

Table 2. Patient Attrition Table and Cohort Size

PATIENTS	LTS	LP
With drugs of interest with first fill in the pharmacy claims – index event	9,018	130,645
At least 1 claim for an opioid drug of interest between October 1, 2018 and Sept 30, 2023	955	18,202
Age > 18 years	955	18,172
Continuous pre- and post-index medical plus pharmacy coverage	614	12,352
Diag. of PHN, DPN, or LBP in the pre-index period	343	5,671

Table 3. DEMOGRAPHICS

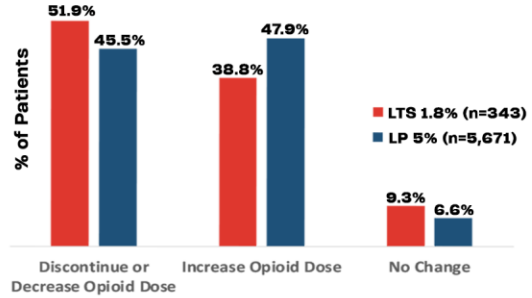
METRICS		LTS 1.8%	LP 5%
AGE	18-44	20 (6%)	211 (4%)
	45-64	120 (35%)	1,486 (26%)
	65-74	106 (31%)	1,646 (29%)
	75-84	67 (20%)	1,510 (27%)
	85+	30 (9%)	818 (14%)
GENDER	Male	114 (33%)	1,939 (34%)
	Female	229 (67%)	3,732 (66%)
INSURANCE	Commercial	68 (20%)	959 (17%)
	Medicare Advantage	275 (80%)	4,712 (83%)

Table 4. Top 5 Opioids by Claims per Treatment Cohort

LTS 1.8%	LP 5%
Hydrocodone/APAP	Hydrocodone/APAP
Oxycodone/APAP	Tramadol
Oxycodone	Oxycodone
Tramadol	Oxycodone/APAP
Morphine	Morphine

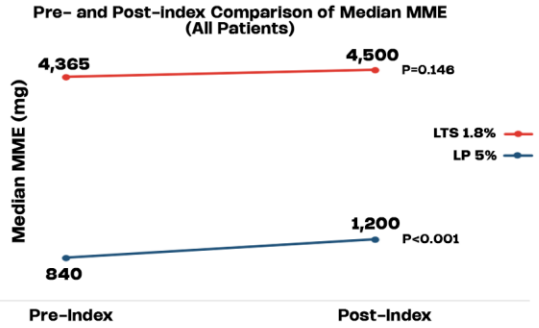
Both cohorts were similar in terms of the top prescribed opioids among patient claims

% of Patients Discontinued/Decreased, Increased or No Change in Opioid Dose in the Post-Index Period



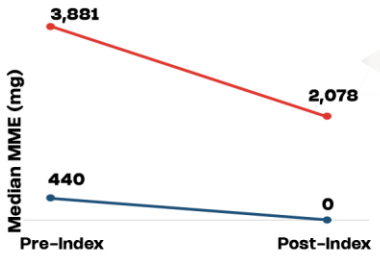
More LTS patients had a decrease or discontinuation of opioid dose compared to LP patients (51.9% vs. 45.5%, p=0.021). Of those who had a decrease, significantly more LTS patients had a > 20% decrease compared to LP patients (21.3% vs. 13.4%, p=0.0008).

Pre- and Post-Index Comparison of Median MME (All Patients)



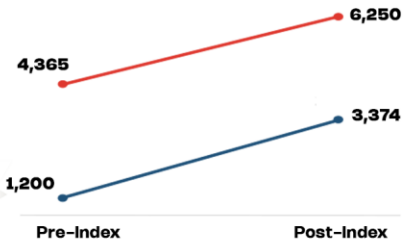
LTS patients had a non-significant change in pre- vs. post-index median MME (+3.1%, p=0.146) whereas LP patients experienced a significant increase (+42.9%, p<0.001).

Pre and Post-Index Comparison of Median MME in Patients Who Had a Decrease in Opioid Dose



In patients who had a decrease in opioid dose, LTS patients experienced a greater than 1800mg reduction in pre- to post-index median MME. LP patients started at a lower median dose (440mg) and had smaller reductions.

Pre and Post-Index Comparison of Median MME in Patients Who Had a Increase in Opioid Dose



In patients who had an increase in opioid dose, LTS patients had a smaller pre- to post-index increase compared to LP patients (43.2% vs. 181.2%).

CONCLUSIONS

Significantly more LTS patients were able to decrease or discontinue opioid dose than LP patients (51.9% vs. 45.5%, Chi-square test, p=0.021)

In a comparison of pre and post-index MME, patients on LTS had a non-significant change (3.1% increase, Wilcoxon signed rank test, p=0.146) while patients on LP had a significant increase (42.9% increase, Wilcoxon signed rank test, p<0.001).

The LTS cohort had a much higher pre-index (baseline) median MME than the LP cohort. It is not surprising therefore, that more patients in the LP cohort were able to reduce their opioid dose to 0mg in the post-index period, than patients in the LTS cohort. This is a reflection of the slow titration schedules that are common in clinical practice that would likely require more than 6 months, especially in patients who start with a higher baseline opioid dose.

Regardless of neuropathic pain type, LTS is associated with less consumption of opioids compared with LP. This suggests better pain control due to improved adhesion with LTS.

Further research is needed to identify patient subgroups who may derive the most benefit from utilizing topical lidocaine to reduce opioid utilization.