Impact of Adhesion on Patient Satisfaction, Medication Switching and Discontinuation With Lidocaine Topical Patches Based on FDA Adverse Event Reporting and Patient Surveys

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Background

- Lidocaine topical system 1.8% (LTS [ZTLido]) is a prescription lidocaine patch approved for the treatment of post-herpetic neuralgia (PHN)
- A comparative pharmacokinetic study established bioequivalence between LTS and lidocaine 5% patch[1] (LP [Lidoderm])
- While LTS and LP deliver the same amount of lidocaine through the skin, the novel design of LTS allows for better adhesion. Across 3 head-to-head adhesion studies, the mean percentage adherence for LTS was 89-93% compared to 63% for LP (brand) and 27% for LP (generic)[2]
- FDA considers adhesion as critical for drug delivery, therapeutic effect, and patient compliance[3]
- FDA guidance issued in 2021 for adhesion testing of all new and generic transdermal systems (TDS)[3]:
  - At least 75% of total surface area should be adhered during the entire use period.
  - For long-wear products, adhesion should be tested under water stress conditions such as bathing and showering

Table 1. Comparison of LTS, LP (brand), and LP (generic) on FDA Adhesion Requirements

	LTS 1.8%	LP 5% (brand)	LP 5% (generic)
Adhesion at 12 hours, mean percentage[2]	89%-93%	63%	27%
Water stress[4]	Yes	No	No
Exercise[5]	Yes	No	No

LTS, lidocaine topical system; LP, lidocaine patch

Objectives

- Evaluate the volume and proportion of product adhesion and product quality reported for LTS and LP through analysis of the FDA Adverse Events Reporting System (FAERS).
- Measure the impact of adhesion on patient satisfaction, switching, discontinuation and ability to function, using 2 internet surveys conducted in 2016 and 2022

Methods

FAERS Data Analysis

- FAERS is a database that contains adverse event (AE) reports, medication error reports, and product quality complaints submitted to FDA
- We queried FAERS for all AE cases related to LTS and LP (generic) from the date of market approval through March 31, 2023
- For each product, we quantified the volume of cases, percentage of cases with "product adhesion" in the event term, and percentage of cases with "product quality" in the event term

Online Patient Surveys

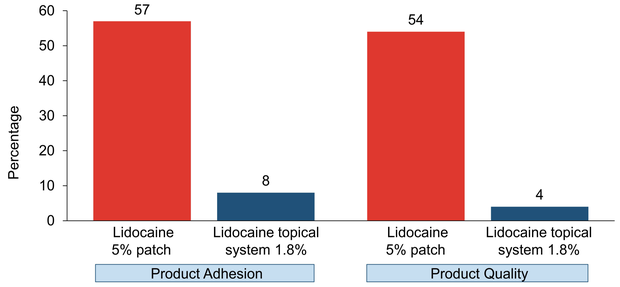
- We evaluated the impact of patch adhesion on patient satisfaction, treatment compliance and function through two online surveys
- Survey 1
  - Conducted in May 2016 (before the market release of LTS)
  - Included patients with post-herpetic neuralgia (PHN) who were treated with LP
- Survey 2
  - Conducted from March 2022 to January 2023
  - Included patients of any diagnosis who were treated with LTS daily for at least 30 days
  - These patients were part of a free drug program that incentivized them with a $10-$20 gift card

Results

FAERS Data Analysis

- As of March 31, 2023, FDA has received 4949 AE cases for LP, of which 2826 (57%) were related to Product Adhesion issues and 2687 (54%) were related to Product Quality issues (Figure 1)
- Comparatively, FDA has received 107 AE cases for LTS, of which only 9 (8%) were related to Product Adhesion and 4 (4%) were related to Product Quality (Figure 1)

Figure 1. Percentage of Total Cases Reported to FAERS Relating to Product Adhesion or Product Quality



	LP	LTS
Product adhesion	2826	9
Product quality	2687	4
Total AE cases[a]	**4949**	**107**

LP, lidocaine patch; LTS, lidocaine topical system; AE, adverse event
[a]One case may contain both Product Quality and Product Adhesion event terms.

Online Patient Surveys

Table 2. Patient Demographics

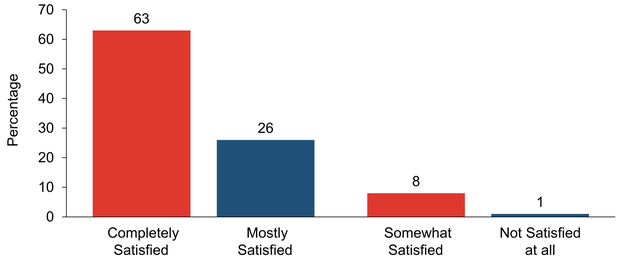
	Survey 1 – LP	Survey 2 – LTS
Patients	153	100
Sex	45.2	53.9
Male	50	26
Female	50	74

LP, lidocaine patch; LTS, lidocaine topical system

Patient Satisfaction

- Only 30% of patients who were treated with LP in Survey 1 reported being "very satisfied" with another 50% of patients being "somewhat satisfied"
- By contrast, 89% of patients who were treated with LTS in Survey 2 reported being "completely/mostly satisfied" with another 10% of patients being "somewhat satisfied" (Figure 2)

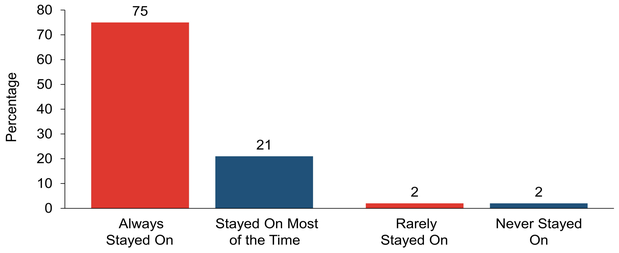
Figure 3: Patient Survey Responses to "How well did ZTlido stick?" (N=100)



Patient Satisfaction With Adhesion

- 62% of patients treated with LP said they are "frustrated" with the patch staying appropriately adhered; 14% were "very frustrated
- 96% of patients treated with LTS responded that their patch "Always stayed on "or "Stayed on most of the time" (Figure 3)

Figure 4: Patient Survey Responses to "How well did ZTlido stick?" (N=100)



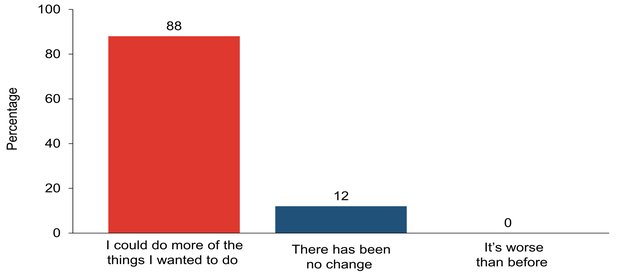
Impact on Medication Switching and Discontinuation

- Adhesion issues caused 24% of patients who were treated with LP to request a different brand of patch and 16% discontinued patch therapy for this reason

Impact on Patient Function

- In total, 88% of patients treated with LTS stated that they were able to do more of the things they wanted to do. (Figure 5)
- When queried on what they liked most about LTS, the top 3 responses were: 1) "I have less pain than before" (76%); 2) "It stuck better than other lidocaine patches I have tried" (63%); and 3) "I can do more of what I want" (36%)

Figure 5: Patient Survey Responses to "What was your experience on ZTlido?" (N=100)



Conclusions

- **LTS has demonstrated significantly improved adhesion compared to LP in head-to-head clinical studies; the high proportion of product adhesion and product quality adverse events reported in the FAERS database for LP affirms this finding.**
- **In addition, an on-line patient survey demonstrated that the impact of poor adhesion results in poor patient satisfaction leading to product switches and even patch discontinuations, whereas better adhesion resulted in improved patient satisfaction, better pain control and enabled the patients to be more functional.**

Disclosures: SN is a paid consultant of Scilex Holding Company, manufacturer of lidocaine topical system 1.8%; EKC and DL are employees of Scilex Holding Company, manufacturer of lidocaine topical system 1.8%.
References: 1. *J Pain Res* 2020;13:1485-1496; 2. *J Pain Res*. 2021;14:513-526; 3. CDER. https://www.fda.gov/regulatory-information/search-fda-guidance-documents/assessment-adhesion-topical-and-transdermal-systems-submitted-new-drug-applications; 4. *J Pain Res*. 2021;14:2459-2467; 5. *J Pain Res*. 2020;13:1359-1367.