

HERPES SIMPLEX

Conduct of a Phase I Proof-of-concept study with a medical device
for the local treatment of Herpes simplex cold sores

Clinical studies on patients with Herpes simplex (HSV) are usually difficult to recruit and very time consuming. Proof of concept studies are even more challenging as they require reliable in vivo measurements methods on small study panels in combination with a short study duration. This case study describes how we overcame these obstacles for the investigation of the efficacy of a dermal patch coated with an antiviral agent.

Study specifications:

- Double-blind, controlled, exploratory
- Monocentric
- Primary parameter: Cold sore-associated inflammation measured by different methodologies
- Secondary parameter: Patient reported outcomes and safety profile
- Planned efficiency of UV-B cold sore induction in screened patients: 40%



Targeted activation of herpes labialis

Nothing new under the sun?

It is a well known fact that exposure to sun light acts as a trigger for cold sores. Older publications reported the use of UV-B lamps to activate herpes labialis in HSV positive patients, but clinical application of this method seemed to be absent from the clinical research community in Europe. In developing and conducting this exploratory trial, we laid the practical groundwork for conducting compact, mono-centric proof-of-concept studies that do not rely on waiting for patients to at some point develop a cold sore but allows for concerted and systematic induction to allow for shorter study schedules.



Activation of herpes

Key challenges

- Recruiting for herpes labialis trials is challenging, because cold sore episodes are infrequent and have a rapid onset, requiring larger studies. We adapted UV-B cold sore induction from the literature to our clinical setting, delivering a practical, safe and reproducible method to induce targeted cold sores.
- Inflammatory activity had to be measured through an occlusive plastic patch which presented a number of physical challenges in terms of imaging – we tested several imaging methods to find the right one for this setting.



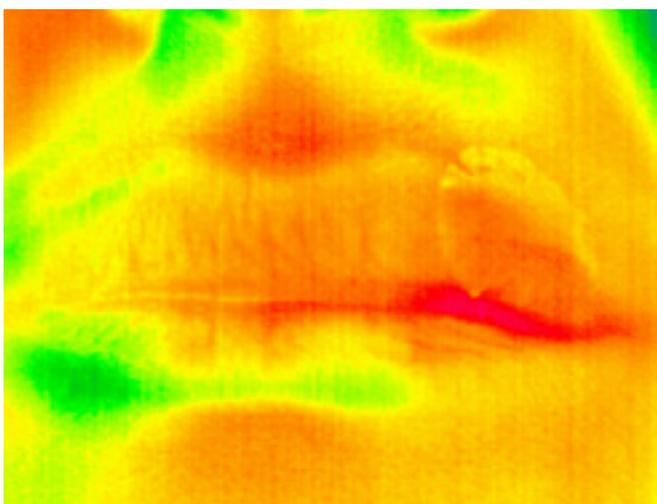
How to image cold sores?

Clinical imaging and image evaluation is one of the main areas of expertise here at pro-derm. This carefully designed study provided our team with the opportunity to adapt three advanced imaging methods for this specific application namely imaging cold sore inflammatory activity through an occlusive plastic patch. While clinical photography

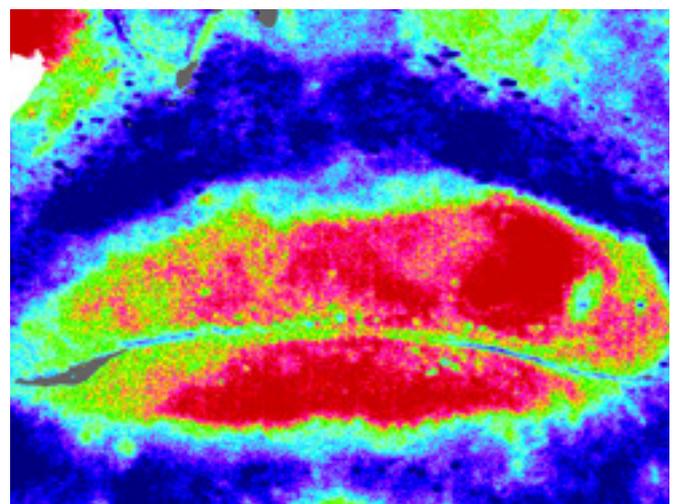
and thermography imaging both had limitations caused by the occlusive lip patch, field laser perfusion imaging was able to effectively measure inflammation-associated blood flow through the patch. This allowed us to reliably distinguish cold sore and control areas despite the plastic patch and quantify cold sore healing.



Imaging with USR-CLiP failed to provide the required image results due to the nature of the test product



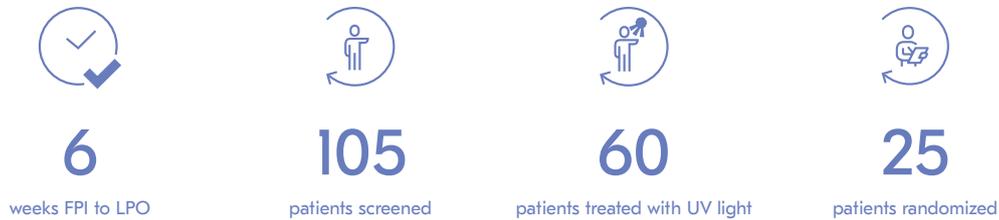
Thermography imaging did also not provide sufficient results



Exceeding expectations: images with the FLPI



Study milestones



We screened 105 adult patients (Fitzpatrick skin type I-IV) with recurrent herpes simplex lesions (RHL), mostly from our extensive database of patients and volunteers, who reported at least one episode of RHL within the previous 12 months that they associated with exposure to sunlight. 67 patients were deemed fit to be included into the study. 60

patients were treated with UV-B radiation. Patients were asked to report to the study site if they perceived the initial subjective symptoms of an impending RHL episode. Of those 60 patients, 25 (~40%) developed a cold sore within 2 days of UV exposure and reported at the study site to be randomized.

Viral Feedback

Herpes simplex had this to say about our work: “I was laying dormant for quite a while and then they woke me up pretty rudely with that UV light. But they took some really great pictures of me! Top notch clinical imaging! 4 out of 5 stars.”

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