Investigating a Novel Treatment for Ichthyosis

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Study # LIT464

This study was sponsored by:

Educare

wound and skin care education

The clinical education division of
BACKGROUND
The ichthyosis are a heterogeneous group of inherited scaling skin disorders that can also affect other organs. They are genetic dermatologic diseases that are characterized by dry, thickened, scaling skin. Ichthyosis affects more than six million Americans and can cause devastating disfiguring disease with numerous physical, social, and emotional sequelae. Ichthyosis is the result of a genetic mutation. There is no cure, only treatments to help manage the symptoms. “Ichthyosis” is taken from the Greek root for “fish” so ichthyosis literally means fish disease, characterizing the scales and plaques formed by the abnormal turnover of the epidermis.

There are an estimated 28 varieties of ichthyosis with four major hereditary types. All variations present with a wide range of severity and associated symptoms. Ichthyosis is currently classified on the basis of clinical presentation and inheritance pattern. X-linked ichthyosis is due to the deficiency of the enzyme squalene sulfatase. Female carriers are asymptomatic. The incidence has been estimated to occur in 160,000 males and is usually apparent soon after birth. Key findings are small, dark, firmly adherent scales; accentuated on the side of the neck and trunk, generally sparing the face, palms, soles and anaceous and peeling spaces. In X-linked ichthyosis, there seems to be a normal epidermal turnover, and this accumulated scale is thought to be due to faulty shedding of the stratum corneum.

PURPOSE
The purpose of this case study was to investigate an advanced skin care line providing endermic nutrition. The thought is that the Olivamine containing product line will diminish the appearance and symptoms associated with Ichthyosis.

OBJECTIVE
A new advanced skin care line that contains Olivamine®, a Quadripeptide that contains amino acids, vitamins, antioxidants and methylsulfonylmethane (MSM), water-resistant silicones, and utilizing surfactant-free phospholipid cleansers was introduced. Studies have demonstrated that the use of topical amino acids can cause an inflammatory response; however, there is scientific evidence that laser homogenization of these molecules reduces the inflammatory response while increasing the bioavailability of the amino acid. The amino acids in Olivamine have been treated with their corresponding amino acid to form a more “active” or available to the skin. The primary co-factors are vitamins A, C, D2, B12, and B6 (as niacinamide). Vitamin C is essential for the formation of collagen.

METHODOLOGY
The protocol included daily cleansing with the phospholipid based cleanser and then gently pat the skin dry. Once dry apply the skin repair moisturizing cream, followed by the protectant barrier cream to decrease excessive transepidermal water loss (e-TWL). For areas of odor, fungal infection, and other high risk areas, an antimicrobial cleanser was used. For the fungus, an Olivamine containing antifungal cream with 2% miconazol nitrate was applied.

CASE STUDY
J.M. is a 44 year-old African American male diagnosed at age 10 months. J.M. has a history of hypertrichosis and is status post myocardial infarction, and has unintentionally recently lost 70 lbs. For Ichthyosis, he has been treated unsuccessfully with rock salt, scrubbing with a wired brush, motor oil soaks, clear plastic wraps, bleach soaks, topical salicylates, poly hydroxy acid containing lotions as well as oral tretinoin. He describes periods of intense itching, redness, bleeding skin, pain and constant irritation. He suffered with frequent episodes of pinnas peeling in the interdigital web space and reported skin odor, possibly from superficial sebaceous. J.M. became depressed and isolated. Hischief complaint was, “My Ichthyosis”. His goals of treatment were, “To be able to wear shorts and not itch or be in pain anymore!”

OUTCOMES AND RESULTS
During the first week of treatment, the test area began to exfoliate and the patient reported an immediate decrease in itching and discomfort. By week two, partial area of “normal” appearing skin on the left arm were visible. By week three, the entire test area was cleared. At week four J.M. reported, “People have noticed that my skin is getting better I feel just great! I don’t itch or have any pain in this area. I feel like a new man!” He is now wearing short sleeved shirts and shorts and is no longer ashamed of his body, and not be embarrassed of his ichthyosis. The Olivamine containing products have successfully treated his ichthyosis and the symptoms have not returned. The products were cosmetically acceptable to the patient and his family as well.

J.M. continues using the skin care products, head-to-toe and has had similar success with his entire body. After completing his thickened sclerotic epidermis, he has continued with one product after cleaning, the nutritional protective cream containing seven silicones.

DISCUSSION
This skin care line contains several key ingredients.
- The three most abundant amino acids, glycine, L-tyrosine, and L-proline, the building blocks of collagen.
- Vitamins A, C, D2, B12, and B6 are present to support the skin’s ability to utilize amino acids and other nutrients
- Antioxidants, such as Hydroxytyrosol, found in olives and virgin olive oil, is by far the most powerful antioxidant available today L-taurine, another antioxidant is also an important amino acid.
- Methylsulfonylmethane or MSM, is a naturally occurring anti-inflammatory agent that may inhibit or slow pain fiber conduction. These pain fibers lack the protective myelin sheath and are responsible for the pain associated with patients known as “stingers” (low threshold for pain).
- Phospholipid based cleansers that maintain the natural pH of the skin. Historically surfactants have been used; however, research has demonstrated that surfactants can actually strip the skin’s natural protective acid mantle.

Occlusive ingredients such as petrolatum are contained in many of the skin care products utilized for Ichthyosis and other dry skin conditions. Petroleum blocks the metabolic oxygen supply to the epidermis normal cellular respiration, traps toxins and moisture, increasing the risk for infection. Since the Olivamine containing products contain no occlusive ingredients, it is hypothesized that the carrier as well as the nutritive qualities could have had a positive effect on this patient.

Ingredients such as the dimethicone and other silicones in the Olivamine containing products help deliver the active ingredients and nutrients in a prolonged time rather than doing so all at once. Silicones act as delivery systems for active ingredients because they form hydrophilic films on the skin, which is spreadable and traceable. Silicone may also help the product stay in place for longer periods of time. For example, in a study (Figure 1), the Olivamine containing silicone protective cream washed five wash-offs and remained in contact with the skin when compared to other leading brands with ingredients such as petrolatum, dimethicone and zinc oxide.

CONCLUSION
This encouraging case study demonstrates the unique capabilities of a novel skin therapy product line. The reported benefits are:
- cleanse with phospholipids that do not dry or strip the skin
- repair and nourish the skin with endermic nutrients and potent antioxidants such as hydroxytyrosol and MSM proven to decrease the transmission of pain fibers
- provide the most abundant amino acids in pre-collagen, glycine, L-tyrosine and L-proline and their vitamin co-factors A, B12, B6, and D2
- protect while decreasing e-TWL* with a long lasting seven silicone based protectant cream
- safely and comfortably debulk the thickened dry skin condition without irritation
- Prevent the further build-up of thick, hardened scaly skin with aesthetically pleasing products that allow epidermal respiration, normal barrier recovery and epidermal proliferation.

These benefits have led to a positive outcome on J.M.’s quality of life. He will continue on the therapy for the rest of his life, utilizing cost-effective, over-the-counter products to continue his good results. Endermic nutrition with products containing Olivamine® may help dermatologic conditions such as Ichthyosis and other serious skin circumstances where there are no known cures or adequate treatments.

REFERENCES