Minimal Erythema Dose Testing Device

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Technology description

Ultraviolet (UV) light phototherapy is a well-established therapy for many dermatological ailments such as psoriasis, eczema, generalized itch, cutaneous lymphoma, and vitiligo. The smallest dose of UV light that causes reddening of non-diseased skin is called the minimal erythema dose (MED). Determining the MED is important for establishing the safe and efficacious dose of UV light for treatment and to avoid side-effects.

UCSF researchers have developed a device that allows for accurate and rapid determination of MED by testing multiple UV doses at once. The MED testing device is comprised of a structural support and several windows that allow discrete fractions of UV light doses to pass through to the underlying skin. The testing thus needs a single UV exposure to test multiple UV doses by reducing the UV irradiance that can pass through subsequent apertures of the device. The device is placed on the skin and the skin is exposed to UV light from the same source used for actual treatment, thereby preventing measurement errors caused if using light sources disparate from the treatment source.After the UV exposure, the exposed skin can be examined for redness in different windows to determine the MED of the individual quickly and accurately.

UCSF researchers have developed a novel device to deliver multiple UV doses simultaneously to perform testing of the optimal safe and effective dose of UV for treatment of patients.

Application area

The MED device will be broadly applicable in both clinical and research settings:

1. MED determination is required for phototherapy for psoriasis, atopic dermatitis, generalized itch, cutaneous lymphoma and many other dermatological ailments.
2. Lighting companies may use this device in research and development for the products.

Advantages

A MED testing device allows for multiple UV doses to be tested at once. This MED device overcomes drawbacks of existing MED testing methods and devices because it is:

1. Rapid
2. Convenient to use
3. Accurate

4. Inexpensive

Institution

University of California, San Francisco