

Appendix S4: Recommendation for use of handheld NB-UVB device in treatment of vitiligo.

Based on our systematic review and meta-analysis, we propose following measures for effective use of the handheld NB-UVB device therapy in treatment of vitiligo: -

1. Selection of type of vitiligo

- Non-segmental type has better response than segmental vitiligo.
- Stable vitiligo shows earlier response to re-pigmentation
- Rapidly progressive (50% increase in vitiligo lesion area including any remote new lesions or increase in size of lesions in one month) should not be preferred for the handheld therapy
- Body surface area (BSA) of vitiligo: More the area of involvement more is the total time of exposure. So, based on patients' convenient better to use the device with minimal body surface area involvement.
- Best site for re-pigmentation: head and neck followed by trunk and proximal limbs. Poor response seen over bony prominence or over hands and feet.

2. Frequency of administration:

- Three sessions (alternate day) per week is preferred as compared to twice or once weekly

3. Dosage protocol

- Energy exposure with initial dose range from 50mJ/cm² – 500mJ/cm². The lower energy can be used for sensitive area like face, nipples and genitalia. Even if minimal erythema dose calculation not possible based on skin type, initial dose can be selected for skin types I-III and type IV -VI as 50-200mJ/cm² and 200-500mJ/cm² respectively.
- The exposure time for each patch is calculated using formula:

Exposure time of each vitiligo patch= Energy (mJ/cm²)/ Irradiance (mW/cm²)

- The device should be kept on for 45 sec and then start exposure till 5 minutes and switch of the device for next 5 minutes and repeat the cycle till all vitiligo patches get exposed.
- The increment of 10-20% energy after initial dose of exposure in each session should be done until development of mild erythema which subsides in a day. Slow increment of even 5% fluence can be considered based on anatomical location because of different sensitivity.

4. Time of exposure

- Any time of day according to patient convenience.
- If application is done during daytime, then apply sunscreen with skin protection factor ≥ 30 , before leaving for outdoor and re-apply every 2hourly.

- Avoid additional sun-exposure

5. Management of side effects

- Dryness: emollient or mineral oil
- Erythema/blister/edema- topical or oral steroid (based on severity and extent)
- Skin thickening: topical steroid or keratolytic agent
- In case of erythema persistent for more than 1 day, can reduce energy dose by 20% of previous dose. In cases of grade 3 and 4 erythema, stop exposure of therapy with device and treat with topical steroid. After resolution of reaction, restart at an energy dose of 50% of previous dose and increase gradually at 5-10% of energy till mild erythema.

6. Duration of therapy

- Maximum duration of therapy: 1 year
- No re-pigmentation after 3 months: failure to therapy

7. Calibration of device

- Device must be calibrated for irradiance output (mW/cm^2) using UV meter every 3 months

8. Handheld NB-UVB device in children

- Devices should be handled with care and should be used only after full training along with proper instruction to the patient or guardian of the children
- Minimal age group for treatment documented as per literature is 4 years