

A within-patient half-face dose ranging study of the safety and efficacy of 585nm yellow LED light for the treatment of mild to moderate acne.

Previous studies have shown that blue light phototherapy can improve mild to moderate acne. One proposed mechanism for action of visible light in acne is an effect on endogenous porphyrins in propionibacterium acnes (*P. acnes*). Intense yellow light around 585nm should penetrate deeper than blue light and will also activate the porphyrins in *p. acnes*.

This study assessed the safety and efficacy of a new intense yellow LED acne treatment.

30 subjects with mild to moderate facial acne were treated twice a week for 4 weeks. Each side of their face received one of three doses of yellow light: 3.0J/cm<sup>2</sup>, 1.5J/cm<sup>2</sup> and <0.1J/cm<sup>2</sup> (sham) in an incomplete blocks design such that each treatment dose was compared to each other dose within patients for 20 patients.

Main outcome measures were numbers of adverse events (to assess safety), Leeds acne grading, lesion counts, Dermatology Life Quality Index (DLQI) and patient and investigator global assessment of improvement. Assessments were made before and immediately after the treatment, and at 2, 4 and 6 weeks after treatment.

No adverse events were recorded.

The highest dose resulted in a 27% improvement in Leeds acne score immediately after treatment ( $p=0.05$ ), which remained at the 6 week assessment (23%,  $p=0.05$ ).

Total lesion count decreased by 49% immediately after treatment ( $p<0.001$ ), and was 21% less at 6 weeks ( $p=0.07$ ). DLQI improved by 36% immediately after treatment ( $p=0.004$ ), and was still improved by 21% at 6 weeks ( $p=0.03$ ).

Standardised colour photographs were independently assessed by three dermatologists. 77% of assessments of pre- vs immediately post images judged the high dose treatments had improved the appearance of acne.

We conclude that intense yellow light is a safe, well-tolerated and effective treatment for mild to moderate acne.