0.5% Liposome-encapsulated 5-aminolevulinic acid (ALA) photodynamic therapy for acne treatment

Jee-Soo An¹, Jeong-Eun Kim¹, Dong-Hun Lee², Byung-Yoon Kim², Soyun Cho², In-Ho Kwon³, Won-Woo Choi⁴, Seong-Min Kang¹, Chong-Hyun Won¹, Sung-Eun Chang¹, Mi-Woo Lee¹, Jee-Ho Choi¹ & Kee-Chan Moon¹

¹Department of Dermatology, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea
²Department of Dermatology, Seoul National University College of Medicine, Seoul, Korea
³Department of Dermatology, Hallym University Sacred Heart Hospital, Anyang, Korea
⁴Wells Dermatology Clinic, Seoul, Korea

Correspondence: Chong-Hyun Won, Department of Dermatology, Asan Medical Center, College of Medicine, University of Ulsan, 388-1, Poongnap-dong, Songpa-gu, Seoul, 138-736, Korea. Fax: 82 2 486 7831. E-mail: chwon98@chol.com

Abstract

Background:
Photodynamic therapy using topical 5-aminolevulinic acid (ALA) has been successful in treating acne vulgaris, but sun avoidance for at least 48 hours after treatment is necessary due to the risk of post-treatment photosensitivity. Recently, a lower concentration of liposome-encapsulated 5-ALA was introduced to minimize this risk.

Objectives:
To evaluate the efficacy and safety of liposome-encapsulated 0.5% 5-ALA in the photodynamic therapy of inflammatory acne and its effects on sebum secretion in Asian skin.

Methods:
Thirteen Korean subjects with inflammatory acne were administered 0.5% ALA spray before photoradiation treatment. Photoradiation was performed at 3.5–6.0 J/cm² three times during each of two visits, performed 2 weeks apart. Improvement of acne was evaluated subjectively and objectively based on the Korean Acne Grading System. Sebum secretion was measured quantitatively at each visit.

Results:
The mean reduction in acne grade at the end of the treatment was 43.2%. Of the patients, 69.2% reported improvements in subjective skin oiliness, but fewer showed objective reductions in sebum secretion as determined by the Sebumeter® SM10. No serious adverse events were observed.

Conclusion:
Photodynamic therapy using liposome-encapsulated 0.5% 5-ALA improved inflammatory acne with minimal side effects in Asians.

Keywords
acne vulgaris, aminolevulinic acid, liposomes, photodynamic therapy