Emerging problems with conventional antibiotic, retinoid and hormonal acne treatments, and their related side effects, have created a demand for safer treatments. The aim of this study was to evaluate the efficacy of a new acne treatment protocol based on aminolevulinic acid-photodynamic therapy (ALA-PDT) and micropeeling. After undergoing the appropriate washout of any previous treatment, 50 patients with mild-moderate inflammatory facial acne applied a micropeeling lotion containing glycolic and salicylic acid every night for two weeks, after which two ALA-PDT sessions were scheduled separated by a period of two weeks. A polyethylenglycol ointment containing 5% ALA was applied under occlusion for two hours and 75 J/cm² of red light (630 nm) was administered in eight minutes using a bifacial diode lamp, irradiance 160mW at 50 mm. One week after the PDT session, the patients resumed the topical micropeeling treatment. Each patient’s acne was visually assessed by a spot count of inflammatory and non-inflammatory lesions at baseline and after one, three and six months of treatment. The acne scores of all of the patients progressively decreased in proportion to their baseline scores. The mean percentage reduction in inflammatory lesions after one, three and six months was respectively 62%, 84% and 96%. The adverse effects were transient erythema after the PDT sessions. ALA-PDT and micropeeling are effective in reducing mild-moderate acne. ALA-PDT promptly reduces inflammatory acne lesions but is scarcely efficient against comedons and microcysts, which require micropeeling. In our experience, the combination of ALA-PDT and micropeeling is more efficient than conventional therapies in cases of mild and moderate acne. This new drug-sparing treatment can be considered an advance in treatment of acne.