World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:10, No:12, 2016

Efficacy of Sparganium stoloniferum–Derived Compound in the Treatment of Acne Vulgaris: A Pilot Study

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Abstract : Background: Acne vulgaris is one of the most common dermatologic problems, and can have a significant psychological and physical effect on patients. Propionibacterium acnes' roles in acne vulgaris involve the activation of toll-like receptor 4 (TLR4), and toll-like receptor 2 (TLR2) pathways. By activating these pathways, inflammatory events of acne lesions, comedogenesis and sebaceous lipogenesis can occur. Currently, there are several topical agents commonly use in treating acne vulgaris that are known to have an effect on TLRs, such as retinoic acid and adapalene, but these drugs still have some irritating effects. At present, there is an alarming increase in rate of bacterial resistance due to irrational used of antibiotics both orally and topically. For this reason, acne treatments should contain bioactive molecules targeting at the site of action for the most effective therapeutic effect with the least side effects. Sparganium stoloniferumis a Chinese aquatic herb containing a compound called Sparstolonin B (SsnB), which has been reported to selectively blocks Toll-like receptor 2 (TLR2) and Toll-like receptor 4 (TLR4)-mediated inflammatory signals. Therefore, this topical TLR2 and TLR4 antagonist, in a form of Sparganium stoloniferum-derived compound containing SsnB, should give a benefit in reducing inflammation of acne vulgaris lesions and providing an alternative treatments for patients with this condition. Materials and Methods: The objectives of this randomized double blinded split faced placebo controlled trial is to study the safety and efficacy of the Sparganium stoloniferum-derived compound. 32 volunteered patients with mild to moderate degree of acne vulgaris according to global acne grading system were included in the study. After being informed and consented the subjects were given 2 topical treatments for acne vulgaris, one being topical 2.40% Sparganium stoloniferum extraction (containing Sparstolonin B) and the other, placebo. The subjects were asked to apply each treatment to either half of the face daily morning and night by randomization for 8 weeks, and come in for a weekly follow up. For each visit, the patients went through a procedure of lesion counting, including comedones, papules, nodules, pustules, and cystic lesions. Results: During 8 weeks of experimentation, the result shows a reduction in total lesions number between the placebo and the treatment side show statistical significance starting at week 4, where the 95% confidence interval begin to no longer overlap, and shows a trend of continuing to be further apart. The decrease in the amount of total lesions between week 0 and week 8 of the placebo side shows no statistical significant at P value >0.05. While the decrease in the amount of total lesions of acne vulgaris of the treatment side comparing between week 0 and week 8 shows statistical significant at P value <0.001. Conclusion: The data demonstrates that 2.40% Sparganium stoloniferum extraction (containing Sparstolonin B) is more effective in treating acne vulgaris comparing to topical placebo in treating acne vulgaris, by showing significant reduction in the total numbers of acne lesions. Therefore, this topical Sparganium stoloniferum extraction could become a potential alternative treatment for acne vulgaris.

Keywords : acne vulgaris, sparganium stoloniferum, sparstolonin B, toll-like receptor 2, toll-like receptor 4
Conference Title : ICDDS 2016 : International Conference on Dermatology and Dermatologic Surgery
Conference Location : Bangkok, Thailand
Conference Dates : December 12-13, 2016