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PHOTOTHERAPY, PHOTODYNAMIC THERAPY

## THERAPEUTIC EFFECT OF IMIQUIMOD ENHANCED ALA-PDT ON CUTANEOUS SQUAMOUS CELL CARCINOMA.

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Background: Topical photodynamic therapy (PDT) is currently not recommended for cutaneous squamous cell carcinoma (cSCC) because inadequate penetration of topically applied photosensitizers lead to poor treatment response. Imiquimod (IMQ) as an immune response modifier, is known to exhibit antitumor activity. As an adjunct therapy, it is recently seen to enhance the effect of PDT.

Objective: To use IMQ as an adjunct therapy with topical PDT to enhance the effect of PDT in those patients with cSCC who are not eligible for surgery.

Method: 52 SCC implanted mice model were equally divided into four groups: IMQ, IMQ+PDT, PDT and control group. Treatment efficacy among these groups was compared by tumor volume and digital photographs. Also, immunohistochemical (IHC) markers, q PCR and apoptotic cells were studied. After successful result of animal experiment, human study was carried out on two patients with invasive cSCC on lips and foot. The patients were treated with daily application of 5% imiquimod cream and ALAPDT at 2 weeks interval. Treatment response was assessed via clinical examination, digital photographs and dermoscopy findings.

Results: The study demonstrated that IMQ+PDT has better effect than IMQ alone or PDT alone. Increased expression of IL-6, IL-8, IFN-a, CXCL9, CXCL10 and TNF-a was seen in IMQ+PDT group. IHC staining showed same number of CD4+cells in IMQ+PDT and PDT groups but increased number of CD8+cells in IMQ+PDT group. Also, number of apoptotic cells were maximum in IMQ+PDT group. Human study also delivered excellent results in both the patients with complete clearance of lesion after 3–6 sessions of treatment.

Conclusion: PDT combined with imiquimod may have enhanced effect for the treatment of invasive cSCC.





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