

LOCAL PHOTODYNAMIC THERAPY FOR SQUAMOUS CELL CARCINOMA  
IN A MURINE MODEL

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ABSTRACT

The objectives of the present studies were to evaluate the use of local photodynamic therapy (PDT) on tumor growth inhibition in a murine model of squamous cell carcinoma (SCC).

SCC was induced in nude mice by injection of a human SCC cell line. In study 1 (dose effect), two treatment groups received intra-tumoral injection of verteporfin at a dose of 0.01, 0.1 or 1.0 mg/cm<sup>3</sup> dissolved in DMSO. Controls received only DMSO or no injectate. In study 2 (solvent effect), two treatment groups received verteporfin (0.1mg/cm<sup>3</sup>) dissolved in 5% dextrose solution (D5W) or DMSO. Controls received solvent only. All groups received identical light illumination (100 J/cm<sup>2</sup>). Relative change in tumor volume (RCTV) at day 15 and 30 was compared between groups using Wilcoxon-Rank Sum test (significance: p<0.05).

In study1, RCTV in 0.01 mg/cm<sup>3</sup> group was not different to control groups. RCTV in 0.1 mg/cm<sup>3</sup> group was reduced compared with both control groups and the 0.01 mg/cm<sup>3</sup> group. In study 2, treatment with vertporfin in DMSO resulted in a lower RCTV than controls. No significant difference in RCTV was found between verteporfin in D5W vs. DMSO.

Local PDT using verteporfin at a dose of 0.1 mg/cm<sup>3</sup> and a light dose of 100 J/cm<sup>3</sup> effectively inhibited the growth of SCC in this model at day 15 and 30. Choice of solvent (DMSO vs. D5W) did not affect the results. Local PDT may be an effective adjunctive therapy for the treatment of equine SCC.