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55

**COMBINED PHOTODYNAMIC AND
PHOTOTHERMAL DAMAGE TO CHICK
CHORIOALLANTOIC MEMBRANE BLOOD
VESSELS: IMPLICATIONS FOR PORT
WINE STAIN TREATMENT**

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Background and Objectives: Port wine stain (PWS) blanching following pulsed dye laser (PDL) therapy remains variable and unpredictable. We investigate a novel methodology for selective vascular damage: combined photodynamic (PDT) and PDL treatment (PDT + PDL), which we believe has considerable therapeutic potential.

Materials and Methods: Benzophorphyrin derivative monoacid ring A, BPD, (Verteporfin, QLT, Vancouver, Canada) solution was administered intraperitoneally into chick embryos. Vessels were videotaped prior to and then 1 hour post-intervention. Vessels were assessed for damage based on the following scale: 0, no damage; 1, coagulation; 1.5, vasoconstriction; 2.0, coagulation + vasoconstriction; 2.5, angiostasis; 3.0, hemorrhage. Study groups were: (1) control (no BPD, no light); (2) BPD only; (3) PDL irradiation (4.0 J/cm^2) only; (4) continuous wave (CW) irradiation (60 mW/cm^2 , 125 seconds) only; (5) BPD + PDL; (6) BPD + CW irradiation; (7) BPD + CW irradiation followed immediately by PDL irradiation (PDT + PDL).

Results: Combined PDT + PDL resulted in significantly more severe vascular damage than any other study group: 48% more than PDL alone, 110% more than PDT alone.

Conclusions: Combined PDT + PDL is a novel and promising approach for selective vascular damage and may offer a more effective yet safe method for treatment of PWS and other vascular skin lesions.