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ABSTRACTS**

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**SHORT-TERM VS LONG-TERM RESPONSE OF
THE MICROVASCULATURE TO SELECTIVE
LASER THERAPIES**

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Background and Objectives: Vascular remodeling may be an important mediator of the ultimate outcome after selective laser therapy. The short-term (<48 hr) vascular response has been reported to correspond well with theoretical modeling predictions. To evaluate the predictive capability of short-term studies, we studied the long-term (several weeks) vascular response to laser therapy.

Study Design/Materials and Methods: We used laser speckle imaging to monitor blood flow dynamics in the hamster dorsal window chamber, after either photodynamic or pulsed laser irradiation therapies. The former was performed using benzoporphyrin derivative monoacid ring A (BPD) activated with continuous-wave argon-pumped dye laser light (576 nm). The latter was performed with a combination 532/1064 nm Nd:YAG laser.

Results: Our data suggest that the short-term response is a poor predictor of the long-term response. With photodynamic therapy, we observed a progressive decrease in blood flow over the initial 3–5 days followed by reperfusion. With pulsed laser irradiation, we observed both reperfusion of initially collapsed vessels and apparent angiogenic activity to replace permanently destroyed vessels.

Conclusions: Our results demonstrate the inherent difficulties of theoretical modeling to predict the long-term vascular response to selective laser therapy, and illustrate the need for long-term monitoring.