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Post-operative one hour intraocular pressure spikes and long term pressure efficacy in micropulse laser trabeculoplasty (MLT) vs selective laser trabeculoplasty (SLT)

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Purpose
To determine postoperative one hour intraocular pressure spikes (IOP) in patients undergoing MLT or SLT, and to compare the two modalities.

Methods
A retrospective chart review of patients diagnosed with glaucoma or increased intraocular pressure at Cook County Health Hospital Systems was performed. Demographic information, medications, co-morbidities, laser settings, and intraocular pressures were recorded. IOP spikes were defined per the American Academy of Ophthalmology as pressures >5mm from baseline.

Results
A total of 36 eyes were analyzed, 14 undergoing SLT and 22 undergoing MLT. Of the 14 patients undergoing SLT, 1 patient had a post-operative 1 hour IOP spike of 5mm (23% increase), 3 patients had no IOP changes, and 8 patients had decreased IOP. 2 patients (14%) had to increase the number of IOP lowering drops within 6 months of SLT while 12 patients (86%) remained on the same number of drops with an overall average of 2.5 drops preoperatively and 2.7 drops postoperatively.
Of the 22 patients undergoing MLT, 0 patients had a post-operative 1 hour IOP spike, 17 patients had no IOP changes, and 5 patients had decreased IOP. All 22 patients (100%) remained on the same number of IOP lowering drops within 6 months of MLT with an average of 1.5 IOP drops pre and postoperatively.
Of the 22 MLT treated patients, there were 0 pressure spikes post-operatively at 1 hour (-3.0% vs -14%; p=0.05) and 0 post-operative 1 week pressure changes (-20% vs 0%; p=0.01) showing significance when compared to the 14 SLT treated patients. There was no difference between the two modalities at 1 month (p=0.31), 3 months (p=0), 6 months (p=0.32), 9 months (p=0.17), and 12 months (p=0.51)

Conclusions
Intraocular pressure spikes 1 hour post operatively were only seen in SLT treated patients. MLT patients showed significant decreased or unchanged pressure changes when compared to its counterpart at 1 hour and 1 week. Long term pressure changes were similar amongst the 2 modalities

showing similary long term efficacy. Further study is needed to determine the association between MLT and acute pressure changes postoperatively.

Layman Abstract (optional): Provide a 50-200 word description of your work that non-scientists can understand. Describe the big picture and the implications of your findings, not the study itself and the associated details.