LOCAL THERMAL HYPEREMIA DURING FAST HEATING IN PATIENTS WITH DIABETES MELLITUS

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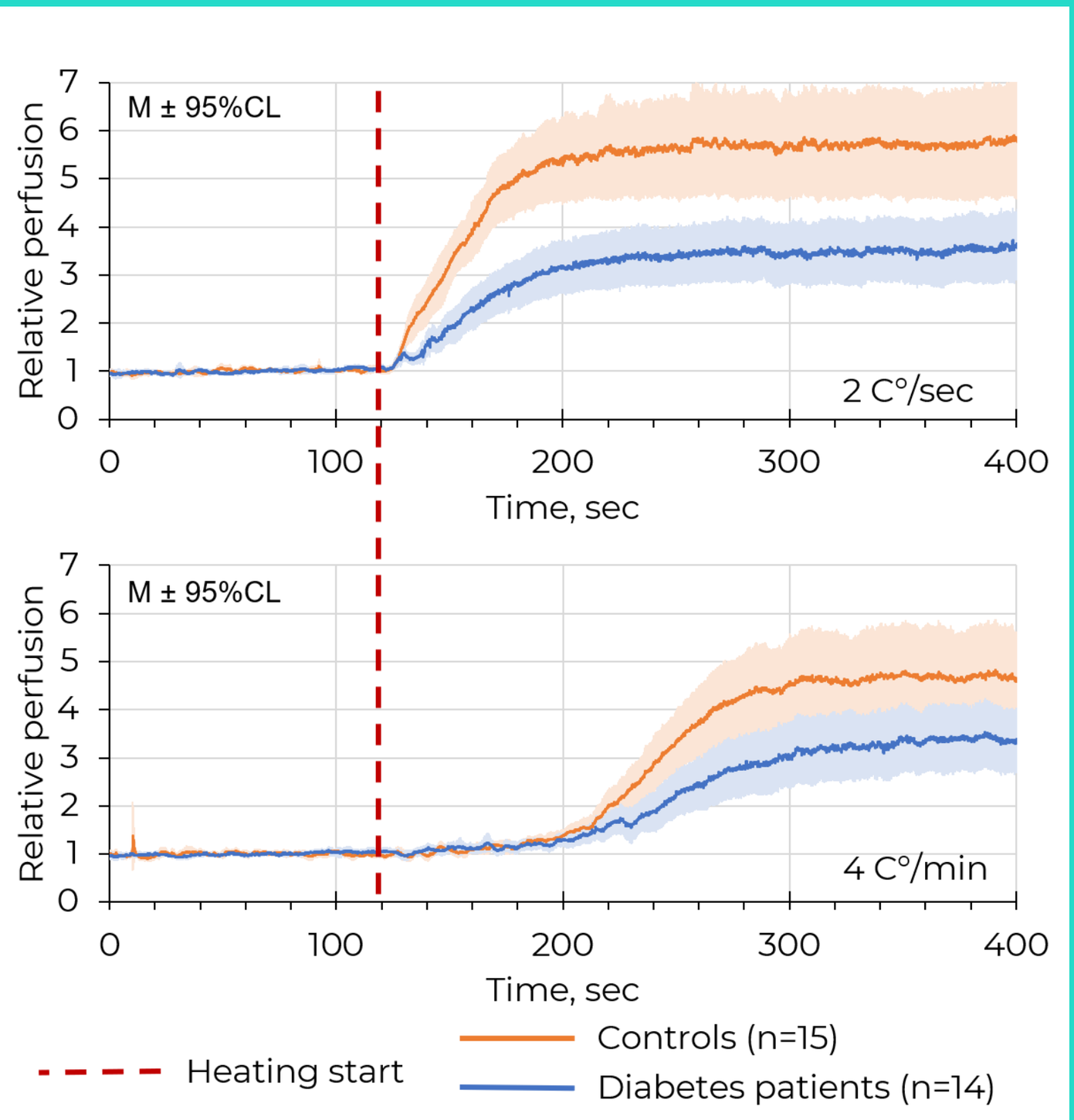
Background and aim: It is known that local thermal hyperemia (LTH) in patients with diabetes mellitus is reduced compared with healthy people. In current work we decided to estimate how strongly this effect is expressed at different heating rates.

Methods: The experiment included 15 conditionally healthy volunteers (10 women, 5 men) and 14 patients with type 2 diabetes (9 women, 5 men). The study included patients with the experience of the disease for more than five years, the level of HbA1c was more than 7%. Microcirculation was evaluated by laser Doppler flowmetry. The first two minutes we registered baseline perfusion. After that local heating to 42 °C was applied. On the left hand, heating was carried out at a rate of 4°C/min., on the right hand, heating rate was set at 2°C/sec.



Results: At a heating rate of 4°C/min, the differences between the groups were not statistically significant: the groups differed, but the sample size was not enough to achieve significance (Table 1).
Higher rate revealed statistical significance between patients with diabetes and the control group. Differences remained significant after conversion to relative values. (Figure 1).

Table 1. Comparison of microcirculation parameters in the control and study groups

Heating rate	Microcirculation parameter	Control, (n=15); Me [LQ; UQ]	t2DM, (n=14); Me [LQ; UQ]	p-value*
2°C/sec.	Baseline, PU	3,8 [2,57; 4,37]	4,05 [3,25; 4,61]	0,217
	LTH, PU	19,66 [17,74; 23,46]	14,79 [10,52; 17,92]	0,001
	LTH/Baseline	5,09 [4,35; 7,62]	3,08 [2,69; 3,91]	<0,001
4°C/min.	Baseline, PU	3,76 [2,67; 4,59]	4,73 [3,32; 5,48]	0,146
	LTH, PU	19,77 [14,23; 20,2]	13,46 [11,57; 20,72]	0,201
	LTH/Baseline	5,07 [3,63; 6,37]	3,86 [2,43; 4,58]	0,051

* - Mann-Whitney test

Conclusion: This result allowed us to apply a fast heating rate in further studies of LTH in patients with diabetes.

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