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Patients with chronic mesenteric ischemia have an altered sublingual microcirculation.

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BACKGROUND:

Little is known about the microcirculatory alterations in patients with chronic mesenteric ischemia (CMI). We hypothesized that patients with CMI have an impaired microcirculatory function and show an oral microcirculatory response after caloric challenge compared to healthy controls.

METHODS:

All patients and controls received the standard workup for CMI. Sublingual micro-circulation was evaluated before (T0) and 20 minutes after (T1) feeding. The total vessel density (TVD; mm/mm^2), perfused vessel density (PVD; mm/mm^2), proportion of perfused vessels (PPV; %) and microvascular flow index (MFI; AU) were assessed.

RESULTS:

We included 12 patients (63.2 years [IQR 48.8-70.4 years], 67% males) and 12 controls (32.7 years [IQR 27.7-38.1 years], 42% males). At baseline, patients with CMI had a decreased PPV of the sublingual small vessels (median 84.8% vs 95.7%, *P*=0.006), PPV of all vessels (PPV median 85.4% vs 95.3%, *P*=0.007) and microvascular flow index of all vessels (MFIa; median 3.00 vs 2.80, *P*=0.039) compared to healthy controls. After caloric challenge, PVD increased significantly in both small vessels (perfused vessel density of the small vessels [PVDs]) and all vessels (perfused vessel density of all vessels [PVDa]; PVDs [T0]) median 16.3 [IQR 13.3-22.1] vs [T1] median 19.9 [IQR 14.2-26.2], *P*=0.008; PVDa [T0] median 19.1 [IQR 16.2-23.6] vs [T1] median 22.2 [IQR 16.5-28.9], *P*=0.02; proportion of perfused vessels of the small vessels (PPVs; [T0] median 84.8% [IQR 75.3-90.4] vs [T1] median 91.0% [IQR 80.1-93.8], *P*=0.010). In contrast, no significant changes in microcirculatory parameters were observed after caloric challenge in healthy controls.

CONCLUSION:

Patients with CMI have an impaired sublingual microcirculation at baseline and show a significant response in the sublingual microcirculation after caloric challenge, whereas healthy controls have a normal microcirculation at baseline and show no reactive response upon a caloric challenge as seen in CMI patients. Sublingual microcirculation visualization may offer a rapid noninvasive method to identify patients at risk for having CMI.