



## Correspondence and Communications

### Effects of cutaneous negative pressure application on skin microcirculation and state of anastomoses between perforators: A preliminary study



Dear Sir,

We read with great interest the article titled “Effects of cutaneous negative pressure application on skin microcirculation and state of anastomoses between perforators: a preliminary study” by Pavlo O. Badiul et al.<sup>1</sup> The Authors described an interesting procedure to study flap perfusion. In particular, they use thermography to investigate choke anastomosis between adjacent perforasomes with the aim to maximize the microsurgical success procedure, but we have some elements to discuss.

Thermography was used to identify two warm points and a third one in a cool area between them where a -125 mmHg NPA system was placed. After 5 days of its application a significant decrease of temperature’s difference between the cool and warm areas was recorded associated with an increase in temperature in both areas. We congratulate with the Authors for the presented study, in particular for the choice of thermography as a simple, safe and economical method to investigate NPA effects in local network vascular improvement involving also surrounding choke vessels.<sup>2-4</sup> Which type of thermography did the Authors used: a smartphone one or a professional one?

As previously reported in our study published in 2018, NPA seems effectively to increase local microcirculation.<sup>5</sup> In each participant of the study, one periumbilical perforator was identified on each side of the abdomen using an eco-color-doppler. One of them was used as the control group, while the other (study group) underwent 80 mmHg negative pressure for 7 days randomly applied on the skin surface over one of the two selected periumbilical perforators. The flowmetries of both perforators were measured before and after the application of NPA in standard conditions. As observed in the Author’s article, the effects of the NPA were

observed in both groups of perforators including control group. The increment observed also in the control group was probably related to the choke anastomosis. In fact, our study reported a relative flowmetry increment of 9,55% and 44,03% in the control and study groups respectively.

Although the Authors article showed a tendency to optimize blood circulation of the area underwent NPA, vessel caliber remains the critical factor for surgeons in the operative room during microsurgical procedures and therefore further study requiring radiological investigation such as Angio-CT should be taken into account. However, NPA remains a simple, economical and non-invasive procedure that could optimize the perfusion of flap and consequently the ability and the rate of surgical success.

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### Ethical approval

None.

### Declaration of Competing Interest

The Authors have no conflict of interest, no financial interest and have not received funding from any organization for this work.

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