

Poster presentation

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Endoscopic examinations of free flap perfusion in the head and neck region using red-excited Indocyanine Green

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Objective

Malfunction of microvascular anastomoses is regarded as the main reason for failure of free tissue transfer. It was the aim of the current investigation to prove the feasibility and to explore the clinical benefit of endoscopically guided free flap perfusion measurements in the head and neck region using red-excited Indocyanine Green (ICG).

Methods

25 patients who underwent reconstructive surgery including free tissue transfer to the head and neck region took part in this study. Each participant underwent 3 ICG-angiographies (intraoperatively, 24 hrs and 72 hrs postoperatively). The obtained data were evaluated online and offline on PC, and the results compared to the clinical outcome.

Results

There were no partial or complete losses of transplants. Two flaps with an early arterial failure were successfully salvaged by revision surgery. The ICG-angiographies were tolerated well. The gain of fluorescence was delayed in the transplanted tissue when compared to the surrounding tissue, whereas the final maximum fluorescence intensities were comparable. The two flaps with the initial compromise in perfusion showed relative fluorescence maxima (transplant vs. surrounding) of 33% or 37%, respectively, whereas these values lay above 64% for all other examinations.

Conclusion

It was possible to prove the feasibility of endoscopic ICG angiographies in patients with free tissue transfer to the upper aerodigestive tract. The method is easy to perform and there were no adverse events. Especially in difficult situations (e.g. questionable Doppler signals, flaps situated far down in the pharynx...) the method seems to be a welcome adjunct to conventional screening.