Optimal fluorescein dose for intravenous application in miniprobe-based confocal laser scanning microscopy in pigs.

Probe-based confocal laser scanning endomicroscopy (pCLE) enables in-vivo histopathology during ongoing endoscopy. The most frequently used fluorophore is fluorescein sodium administered intravenously. Despite the increased use of pCLE, there are hardly any data on the ideal fluorescein concentration. Therefore, rectal mucosa of pigs was examined after injection (i.v.) of fluorescein as a single bolus (0.1 ml/kg body weight) in different concentrations (0.5%, 1%, 2%, 5%, 10%). Video sequences were recorded after 1, 5 and 60 min. For objective evaluation signal-to-noise ratio (SNR) was computed. For subjective evaluation, video sequences were randomized and blindly evaluated by experienced endomicroscopists. In total, 19037 images were analyzed. The mean SNR increased from the lowest (0.5%; SNR 6.75, range 3.55) to the highest concentration (10%; SNR 9.11, range 3.18). Subjective evaluation demonstrated best image quality with fluorescein concentration of 5%. In conclusion, pCLE shows best results using single injection of IV fluorescein 5%.