SHORT-TERM OBSERVATION OF RETINA BLOOD FILLING CHANGES IN RAT RETINA ISCHEMIA-REPERFUSION MODEL ESTABLISHED WITH A NOVEL OPERATIVE APPROACH AND PROCEDURE

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Purpose: To develop a novel, reliable, reproducible rat model of retina ischemia-reperfusion through a novel operative approach and procedure and observe the retina blood filling changes in short term. Methods: Retinal vasculature was examined and photoed by Retinal Imaging System (OPTO-III, Optoprobe Company, Canada) at 15mins, 30 mins, 60 mins, 1 day, 2 days, 3 days, 4 days, 5 days and 6 days after the surgery. Image processing software (Adobe Photoshop CS6, Adobe Systems Incorporated, USA) was used to quantify and calculate the blood vessels filling areas in the fundus. Quantitative analysis and graphics production were performed with GraphPad Prism 6.0 (GraphPad Software, Inc. USA). The values were presented as mean ± standard deviation (SD) from 6 independent samples. Statistical analysis was conducted by nonparametric one-way analysis of variance. Significance was regarded as P<0.05. Results: Compared with preoperative rat retina arteries and veins areas for each group (100%), at 15 mins, 30 mins, 60 mins, 1 day, 2 days, 3 days, 4 days, 5 days and 6 days after the surgery, the arteries area was 89.3%±7.8%, 110%±6.5%, 101.3%±10.1%, 92.8%±4.1%, 96.7%±0.9%, 99.3%±3.6%, 103%±6.8%, 101.3%±5.2%, 98.3%±6.5%, respectively(n=6). The veins area was 94.3%±10.3%, 112%±4.6%, 113.3%±9%, 89%±1.4%, 101.2%±2.3%, 106%±3.2%, 112.2%±2.1%, 98.3%±4.9%, 111%±2.6%, respectively(n=6). Within 6 days after surgery, the veins’ total fluctuation range along the time was 2.29 times of the arteries’. Conclusions: Rat retina ischemia-reperfusion model established by a novel operative approach and procedure is a reproducible and reliable animal model for studying glaucoma or other retina diseases. Financial Disclosure: No.