Fluorescein Fundus Angiography of Stroke-prone SHR

Shigeki TAKAHASHI, Yasuna HAMAI, and Kozo OKAMOTO

Fluorescein fundus angiography had been applied as a clinical technique for as long as 15 years. Recently, progress of this angiography has given us new information about various diseases and their treatment. So, this method is a necessity for daily clinical examination. This experiment, in which the fluorescein fundus angiography was used, elucidated the extravasation of fluorescein from the retinal vessels in stroke-prone spontaneously hypertensive rats (SHRSP).

**Methods:**
This experiment used SHRSP, SHR, and Normotensive rats (NR). SHRSP and SHR were used at the hypertensive stage after birth, 4–6 months and post-hypertensive stage after birth 12 months past. NR was used at the same ages as well as SHRSP and SHR. Nembutal anesthesia was used given by an intraperitoneal injection into each rat. For the photography, the Topcon fundus camera (TRC-FET3) and Kodak Tri-X-Pan Film were used for fluorescein angiography. These were developed in D76 developer for 15 min. at room temperature.

**Results:**
No extravasation of fluorescein from retinal vessels of SHR and NR was observed at any phase of circulation. The extravasation of fluorescein from to retinal arterioles and peripapillary capillary of SHRSP were seen at arterial phase of circulation. These extravasation of fluorescein were observed at the initial stage of stroke incidence. Further, the leakage of fluorescein from choroidal vessels was seen in the same stages in SHRSP.

**Discussion:**
The fluorescein fundus angiography had been applied to the experiment and compared with the histologic findings. Moreover fluorescein fundus angiography of the rats had been normal as well as urethan induced retinopathy of rat. But, the authors could not obtain clear results for fluorescein fundus angiography of hypertensive rats. The authors intended to perform this experiment, in which the fluorescein fundus angiography was used in SHRSP. In the fluorescein fundus angiography of SHRSP, the extravasation of fluorescein from retinal arterioles and peripapillary capillary were seen in post-hypertension. This extravasation was in same stage of stroke incidence. So the authors thought, the extravasation of fluorescein from these vessels was applied to diagnosis of stroke. Further, these finding were connected with stroke prophylaxis.

From the Department of Ophthalmology, Yamagata University School of Medicine, Yamagata; Department of Pathology, Kinki University School of Medicine, Osaka-fu.
Summary:
The fluorescein fundus angiography was performed on SHRSP, SHR, and NR. The following results were obtained.

1. No extravasation of fluorescein from retinal vessels of SHR and NR was observed at any phase of circulation.
2. The extravasation of fluorescein from retinal arterioles and peripapillary capillary of SHRSP of post-hypertensive stage was seen at arterial phase of circulation. These extravasation of fluorescein coincided with the initial stage of stroke incidence.