Overview of Retinal Photography, Fluorescein Angiography and ICG Angiography

Retinal Photography
Retinal photography is a procedure wherein multiple sets of stereo color photographs are taken of the back of the eye. These photographs are most frequently used to document the appearance of the retina in diabetic retinopathy or macular degeneration, the optic nerve in patients with glaucoma or other optic nerve abnormalities, and the current size and location of suspicious lesions such as tumors. This procedure is frequently combined with fluorescein angiography.

Fluorescein Angiography
Fluorescein angiography is a photographic study of the eye using a bright yellow-orange dye called fluorescein sodium to show the circulation of blood through the veins, arteries and other structures of the eye. At the beginning of the angiogram, a tiny butterfly needle is inserted into a vein in the arm, forearm or hand and a small amount of fluorescein dye is injected. It takes about thirty to sixty seconds for the injected dye to travel through your bloodstream to your eye. A rapid sequence of photographs is then taken as the dye passes through the blood vessels in the back of your eye. The entire sequence of pictures takes about six or seven minutes.

Since the fluorescein dye travels throughout your body, your skin may have a slight yellowish appearance following the angiogram. This normally fades after a couple of hours. The fluorescein dye is eliminated through your kidneys. It will turn your urine bright yellow-orange, fading back to normal over one or two days.

The incidence of adverse reactions to fluorescein dye is low. The most common side effect is transient nausea in about two percent of patients. Other less common reactions include headache, light-headedness, fainting, itching and hives. Rare cases of death have been reported. Leakage of the dye out of the vein and into the surrounding tissue during injection can be painful and every effort is made to prevent this from occurring. If any adverse reaction should occur, it will usually be at the time of injection and subside within a few minutes. You should notify our office if any reaction occurs after your visit.

Indocyanine Green (ICG) Angiography
Indocyanine green (ICG) angiography is very similar to fluorescein angiography. In ICG angiography, a green dye is used instead of fluorescein. This dye is visible at infrared wavelengths and is used to visualize structures deep in the eye which cannot be seen with fluorescein angiography. As in fluorescein angiography, ICG angiography requires injection of the dye into a vein in the arm followed by a rapid sequence of photographs of the back of the eye with a special camera.

The ICG dye is excreted through the liver and bile. It will show in the stool as a greenish discoloration. Documented adverse reactions are uncommon but can include itching, hives, fainting, severe allergic reaction and even death. The drug should be used with caution in patients with known allergies to iodides.

Pregnant or Nursing Women
Animal reproductive studies have not been conducted with fluorescein or ICG. It is also not known whether fluorescein or ICG can cause fetal harm when given to a pregnant woman or can affect reproductive capacity. Furthermore, it is not known whether fluorescein or ICG dyes are excreted in breast milk. Because of these unknowns, intravenous fluorescein and ICG dyes are generally not administered to pregnant or nursing women.

What to Expect During Your Visit
When dressing for your visit, make sure to wear comfortable clothes. If you are scheduled for a fluorescein or ICG angiogram, we recommend short or baggy sleeves that can be rolled up for easy access to your arm where the IV will go. If your sleeves are too tight you may be asked to remove your shirt or you may have to be rescheduled.

When you arrive for your visit, your vision will be recorded, you will be asked to sign a consent form, and your eyes will be dilated. Our photographic days are often very busy and emergency add-ons are common. Some patients will also dilate slower than others. As a result, we may take you out of your scheduled order. Unless you are the first person on the schedule, you should plan to spend as long as two hours in our office.

A special instrument called a fundus camera will be used to take your pictures. The camera flash is very bright and your vision will be “washed out” for a few minutes following the procedure. Although the wash-out fades very quickly, blurring from the dilating drops can last for several hours. For your safety, we recommend that you bring a driver.

If you have any questions about your photographic or angiographic tests, please don’t hesitate to ask.