How Does OCTA Compare to FA?

If I can get much of the same information from a non-invasive modality, why wouldn’t I use it? By Nadia Waheed, MD, MPH

**OCTA versus FA in my practice**

I’ve been fortunate enough to have commercial optical coherence tomography angiography (OCTA) systems since 2014. These devices have completely changed how we visualize retinal abnormalities, and they add new information to what we’ve typically seen with fluorescein angiography (FA).

Both FA and OCTA help visualize the vasculature, and for initial baseline imaging we sometimes use both, especially in cases of choroidal neovascularization (CNV) in age-related macular degeneration (AMD) or other retinal disease and in diabetic macular edema (DME). That’s starting to change, however as we better understand what we see on OCTA.

**Advantages of OCTA**

FA is an invasive procedure, where we only have a few seconds to capture images in the appropriate time frame. If we’re not able to get images as the dye transits through, we lose the opportunity to get valuable information from the fluorescein. With OCTA, however, we can capture images in about 3 seconds, and if we decide the images aren’t high enough quality, it’s an easy procedure to repeat immediately until we get good images.

FA visualizes leakage where OCTA does not. However, in the era of intravitreal injections, leakage has little to no clinical relevance. We treat edema, as visualized on OCT, and not leakage as visualized on FA. OCTA technology allows us to visualize the microvasculature and study the structural and vascular information side-by-side, which can help us determine appropriate treatment regimens. Moreover, in some cases, such as proliferative diabetic retinopathy (PDR), the ability to view the abnormal vasculature on OCTA without it being obfuscated by leakage is actually an advantage.

**When FA may be best**

That’s not to discount FA—when I need wide field imaging, I believe FA provides a better overall picture than OCTA. For the majority of my patients, I start with an OCTA and only use FA if I need additional information that I can’t get with OCTA. For example, if I need to view an area outside the central scan in patients with PDR, then I’ll use FA. In some diseases—like wet AMD—I start with an OCTA and get an FA only if the OCTA does not show me what I expect to see, such as a CNV. I’m finding I need FA less and less. Similarly in central serous chorioretinopathy (CSCR), I always start with OCT and OCTA and find that I need an FA rarely, unless the patient looks worse during a follow-up visit.

**Personal preferences**

OCTA has become my intermediate test between getting an OCT and getting an FA scan. Often times, I can stop at an OCTA. I mentioned CNV before, and I also like having an OCTA at baseline for patients with DME. Those images will help me determine the extent of macular ischemia and allow me to separately visualize the superficial layer and the deep layer.

Finally, I’ve found OCTA to be invaluable in cases of CSCR. Type 1 CNVs are very well visualized with OCTA so it becomes a tool I can use to confirm if CNV is present in the patient.

In short, OCTA has rapidly become a valued diagnostic tool in my armamentarium.