**POSTER #10**

**CASE STUDIES IN THE METHOD DEVELOPMENT OF FLUORESCEIN ANGIOGRAPHY BASED ULTRAWIDE FIELD (UWF) EYE SCREENINGS IN THE MANAGEMENT OF TYPE II DIABETES AND PRE TYPE II DIABETIC PATIENTS.**

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**BACKGROUND:** Type II Diabetes (T2D) is a term for a set of symptoms and conditions that result from the body’s inability to regulate blood glucose levels. This dysregulation compromises vascular networks in the body including the eye, frequently resulting in diabetic eye disease and diabetic retinopathy (DR), a leading cause of vision loss. While early detection and treatment of DR has been identified as a critical factor in preventing vision loss, early vascular pathology is frequently minute and occurs in the periphery of the retina which can be missed by clinicians. Ultrawide Field (UWF) retinal imaging with needle based Fluorescein Angiography (FA) has provided a more thorough study of small vascular changes, though the risks associated with needle based FA have prevented its use for screening purposes.

**METHODS:** In this case study series, we investigated the development of a reproducible and safer, needle free FA methodology using the Optos California Scanning Laser Opthalmoscope (SLO), suitable for use by diabetics. Sugar free drinking solutions between 50 mL and 200 mL were prepared with various concentrations of USP grade sodium fluorescein for oral consumption. Capsular forms of sodium fluorescein were also considered and compared against IV (traditional) fluorescein angiography. Results from this method development were used with five patients who required angiography but were unable to do so due to the presence of fistulas. Patients were either T2D or prediabetic.

**RESULTS:** Capsular and liquid forms of sodium fluorescein resulted in the same quality angiography. In general, liquid consumption resulted in good quality angiographies in 15-20 minutes; capsular forms doubled angiography times. Lower volume amounts of drinking solution compromised angiography quality but higher volumes did not. Unlike previous reports, meal consumption and prior meal type was found to affect angiography time and quality. The type of sugar free drinking solution was also found to affect angiography quality.

**CONCLUSION:** While the contrast quality of needle free FA is not as good as traditional needle based FA, DR retinal pathology is still visible even in pre diabetic patients, potentiating the role of needle free FA in standard screening regimens. Further method development is warranted in this promising technology.