

## Abstract 73

### DIGITAL IMAGE WARPING TO MEASURE AND CORRECT METAMORPHOSIA IN VITREORETINAL DISORDERS.

Oral

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#### **Purpose:**

Metamorphopsia is a common symptom before and after surgery for vitreoretinal disorders. At present quantitative and qualitative measurement of the symptom is not possible. We wished to design and investigate digital software to allow this with the potential for digital correction of images to treat the symptom.

#### **Methods:**

A computer program was developed with gaming software to allow image warping. The patient was tested by technician to correct a grid of squares to neutralise distortion perceived by the patient. 26 patients were tested with a variety of vitreoretinal conditions such as macular hole, macular epiretinal membrane (ERM) and postoperative retinal detachment (RRD). Measures were compared to subjective symptoms and other measures of distortion in clinical practice.

#### **Results:**

The mean age of the patients was 62.6 years with 16 males and 10 females. There were 14 retinal detachments, 6 macular holes and 6 epiretinal membranes. Subjective symptoms of micropsia vertically were related to aetiology with increased micropsia in RRD and macropsia in ERM ( $p=0.02$ ). The measures showed a relation with Morphision parameters ( $p=0.01$ ) but not with M charts. Symmetrical and asymmetrical patterns were detected.

#### **Conclusions:**

Gaming software allowed the development of an image warping program which could measure metamorphopsia. This allows the digital correction of the image presented to the patient to neutralise their perceived distortion. Such digital correction could be applied to the users digital imaging systems such as computer screens, phones and televisions.