SAFE SCLEROTOMY AND INTRAVITREAL INJECTIONS IN YOUNG CHILDREN: NEW GUIDELINES BASED ON IN-VIVO ULTRASOUND BIOMICROSCOPY AND SCLERAL TRANSILLUMINATION TO IDENTIFY LANDMARKS FOR SCLEROTOMY

Purpose: The recommended injection site for intravitreal therapy in young children varies in the literature, ranging from 0.5-3.0mm from the limbus.

We assess whether the perilimbal ‘dark-band’ demonstrated by scleral transillumination (STI) corresponds to ultrasound biomicroscopy (UBM) measurements in children under three years.

Method: Prospective pilot study on children aged ? 36 months undergoing general anaesthesia.

STI performed to identify the perilimbal dark band. Temporal and nasal anterior and posterior edges of the dark band were measured from the limbus. UBM performed next, and limbus to anterior and posterior ciliary body distances were measured. Midpoints of STI and UBM were compared to identify the safe point for sclerotomy.

Results: Nineteen children recruited, 36 STI and 35 ‘gold standard’ UBM measurements obtained. Anterior edge of dark band had weak correlation with the anterior border of ciliary body on UBM. Posterior edge had moderate to substantial correlation with the posterior border of ciliary body.

UBM measurements indicate a safe midpoint for sclerotomy in age 0-6 months at 2.5mm, and for 6-36 months at 3.0mm from the limbus. Midpoints of transillumination had moderate to substantial correlation with UBM midpoints.

Conclusion: This is the first study using UBM to measure ciliary body in-vivo to identify a safe intravitreal approach, and to assess accuracy of transillumination. UBM measurements differ from current cadaver-based guidelines, suggesting 2.5-3.0mm from the limbus, nasally or temporally, is suitable in children under 3 years. Midpoint of dark band identified by transillumination is quick and reliable method for determining sclerotomy site.