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Post hoc Analysis of Clinical Suprachoroidal Injection Experience Across Indications

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Purpose:

This study assessed physician-investigator experience with 1000+ suprachoroidal (SC) injections, a new therapeutic administration technique utilizing a 900 µm or 1100 µm microneedle to inject a drug into the SC space.

Methods:

Datasets from 6 prospective clinical trials (AZALEA, PEACHTREE, TYBEE, TANZANITE, SAPPHIRE and TOPAZ) studying 3 retinal disease indications (noninfectious uveitis, NIU; diabetic macula edema, DME; and retinal vein occlusion RVO) were utilized. Data analyzed included: needle usage (900 µm vs 1100 µm needle) for baseline injection, demographic features (gender, age, race) and ocular characteristics (visual acuity, VA; intraocular pressure, IOP; central retinal subfield thickness, CMT; lens status). Pearson chi-square analysis and bivariate correlations were performed for univariate analysis of categorical and continuous variables, respectively. Multivariate logistical regression was developed to confirm univariate findings.

Results:

Baseline injections were reviewed for 133, 36, and 412 patients with NIU, DME, and RVO with a mean patient age of 50.8, 59.8, and 65.4, respectively. Investigators reported that 900 µm needles were used in 71% (412/581) of these injections, and 1100 µm needles were used in 29% (169/581). No statistical relationships were found between needle length choice and any of the following: disease indication, age, VA, IOP, CMT, lens status or race. Gender of patient and choice of needle length were statistically associated, with 76% (210/275) vs. 66% (202/306) of injections administered with 900 µm needles for female and male patients, respectively (p=0.0061). Injection quadrant location influenced needle length choice with 78% (214/275) of superotemporal quadrant injections administered with 900 µm needles, compared with 65% (73/113) of inferotemporal quadrant injections (p=0.0005).

Conclusions:

Investigators in 6 major prospective trials utilizing a SC injection procedure were consistent in needle choice across demographic groups and ocular characteristics. There were statistically significant associations between choice of needle length and both gender and injection quadrant. Previous studies have reported thinner sclera at the pars plana in the superotemporal quadrant which may explain the preference for shorter needle in this location. Variations by gender could be confounded by factors such as height or weight, which were not assessed. Overall, both needle lengths accommodated a wide range of anatomic and demographic variables.