Retina

PHARMACOKINETIC (PK) PROFILE OF THE PORT DELIVERY SYSTEM WITH RANIBIZUMAB (PDS) IN THE PHASE 3 ARCHWAY TRIAL IN PATIENTS WITH NEOVASCULAR AGE-RELATED MACULAR DEGENERATION

Andrew Chang¹,²,³ S. Gune⁴, M. Maia⁵, H. Ding⁶, K. Maass⁶, M. Morral⁷

¹Ophthalmology, Sydney Retina Clinic, Australia
²Vitreoretinal Unit, Ophthalmology, Sydney Eye Hospital, Australia
³Ophthalmology, Sydney University, Australia
⁴US Medical Affairs Ophthalmology, Genentech, Inc., USA
⁵Bioanalytical Sciences, Genentech, Inc., USA
⁶Clinical Pharmacology, Genentech, Inc., USA
⁷PDS Medical Affairs Ophthalmology, F. Hoffmann-La Roche, Switzerland

Purpose: To characterize the PK profile of ranibizumab delivered via the PDS with fixed refill-exchanges every 24 weeks (Q24W).

Methods: In the PDS with ranibizumab 100 mg/mL Q24W and monthly intravitreal ranibizumab 0.5 mg injection arms of the phase 3 Archway trial (NCT03677934), serum PK samples were collected at specific time points from all patients (N=415), and at additional timepoints from patients at selected sites. In either arm, optional aqueous humor (AH) samples were collected at specific time points; serum samples were also collected at this time. PK-evaluable population included patients who did not receive ranibizumab as supplemental treatment in the study eye after implant insertion or in the fellow eye, or prior intravitreal bevacizumab treatment. Ranibizumab concentrations were measured using validated enzyme-linked immunosorbent assays (lower limits of quantitation: serum, 15 pg/mL; AH, 20,000 pg/mL).

Results: Geometric mean (CV%) serum ranibizumab concentrations ranged from 419 (54%) pg/mL at week 4 to 340 (94%) pg/mL at week 24 in the PDS 100 mg/mL Q24W arm (n=94), and from 1880 (57%) pg/mL at 1–5 days after injection (Cmax) to 58.1 (171%) pg/mL at week 4 (Ctrough) in the monthly ranibizumab arm (n=79). AH PK profile reflected the same trends, with PDS 100 mg/mL Q24W (n=42) maintaining concentrations above monthly ranibizumab Ctrough (n=46).

Conclusion: The PDS continuously released ranibizumab over the Q24W refill-exchange interval achieving steady concentrations. Ranibizumab concentrations with PDS 100 mg/mL Q24W were within the range experienced with monthly ranibizumab injections. AH PK profile was consistent with serum PK profile.