

Pharmacokinetics of RI-002, an Investigational IGIV Preparation

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Rationale: IGIV therapy is indicated for the treatment of primary immunodeficiency diseases (PIDD) associated with defects in antibody production. Respiratory pathogens, especially respiratory syncytial virus (RSV) are particularly troublesome for PIDD and other immune compromised patients with T cell defects. Accordingly, we measured levels of antibody against various pathogens as part of the PK evaluation of RI-002, an investigational novel IGIV preparation.

Methods: RI-002, manufactured from plasma collected from donors prescreened for high-titer antibodies to RSV is being studied for treatment of patients with PIDD. Antibody to *H. influenzae* type b (Hib), cytomegalovirus (CMV), measles, RSV, and selected serotypes of *S. pneumoniae* (SP) was assayed.

Results: PK studies were performed on subjects infused every 3 (3WkSub) or 4 (4WkSub) weeks. 29 subjects (age 3-74), 10 3WkSub and 19 4WkSub received comparable doses of RI-002, 291 to 654 mg/kg and 299 to 760 mg/kg respectively. Mean IgG plasma concentrations and mean C_{max} were comparable. AUC was greater for 4WkSub (8,527 ± 2,335 h×g/L), than for 3WkSub (7,322 ± 1,699 h×g/L), a consequence of the 7-day longer period. Specific antibody to Hib, CMV, RSV, and SP serotypes 1, 3, 4, 5, 6B, 7F, 9V, 14, 18, 19F and 23 were uniformly increased, with no substantive differences between the treatment groups.

Conclusions: The infusion of RI-002 appears to have a PK profile similar to commercially available IGIV preparations. Whether the standardized, high-titer antibody to RSV or other polyclonal antibodies against other respiratory and infectious pathogens will provide added clinical benefit requires further study.