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Phase I, Open-Label, Randomized, Bioequivalence Study of Octreotide (OCT) Long-Acting Repeatable (LAR) Reconstituted in a New Vehicle (NV) vs OCT LAR 30 mg (current vehicle)

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Background: OCT, a commonly prescribed somatostatin analog for the treatment of diarrhea and flushing associated with carcinoid syndrome, is available as an LAR formulation administered intramuscularly once every 4 weeks. SMS995L is a formulation in which OCT microparticles are reconstituted in an NV containing a surfactant that, in contrast to the current OCT LAR formulation, allows for shaking during the suspension process and inversion of the vial for withdrawal into the syringe prior to injection. The NV also allows for a reduced injection volume (2 mL) vs OCT LAR (2.5 mL) delivered via a smaller-diameter, safety-engineered needle (0.9 mm vs 1.1 mm), which is provided in the new injection preparation kit. This study was designed to confirm the bioequivalence of SMS995L 30 mg and OCT LAR 30 mg.

Methods: This was a single-dose, parallel, single-center study involving 2 treatment arms in healthy male volunteers. Over 14 weeks, the subjects underwent pharmacokinetic (PK) and safety assessments with a final visit at week 18.

Results: 106 subjects were randomized to OCT LAR (n=52) or SMS995L (n=54). The 90% confidence intervals for the ratios of geometric means comparing the primary PK parameters (C_{max}, $AUC_{0\text{-}d98}$, and $AUC_{0\text{-}inf}$) after single-dose administration were within the predefined boundary (0.80, 1.25), thereby confirming the bioequivalence of the 2 formulations. Reported adverse events were consistent with the established safety profile of OCT LAR. Importantly, there were no relevant differences in the frequency of injection site reactions.

Conclusions: SMS995L 30 mg (OCT LAR in an NV) is bioequivalent to OCT LAR 30 mg (current vehicle), with no new safety signals observed. It is anticipated that the NV and the new injection preparation kit (vial adapter and a needle of smaller diameter) will enhance convenience and safety for the reconstitution and administration of OCT LAR.

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