Superior Glycaemic Control with Insulin Degludec (IDeg) Compared to Insulin Glargine (IGlar) in Hemodialysis (HD) Patients with Type-2 Diabetes (T2DM) Assessed by Continuous Glucose Monitoring (CGM)

Satoshi Funakoshi, MD, PhD¹, Jyunichiro Hashiguchi, MD, PhD¹, Takashi Harada, MD, PhD¹, Yoshiaki Lee, MD, PhD¹, Hiroshi Ichinose, MD, PhD¹, Osamu Sasaki, MD, PhD¹, Rica Etoh¹, Masatoshi Hayashida¹, Yoshiaki Obata, MD, PhD², Tomoya Nishino, MD, PhD² and Takashi Harada, MD, PhD¹.

¹Department of Dialysis, Nagasaki, Renal Center, Nagasaki, Japan; ²Department of Molecular Microbiology, Nagasaki University Graduate School of Medicine, Nagasaki, Japan.

【Background】During hemodialysis session plasma glucose decreases steeply, and then increases to hyperglycemic state afterwards in diabetic hemodialysis patients. IDeg, an engineered acylated insulin, was recently reported to form a soluble depot after subcutaneous injection with a subsequent slow release of insulin and an ultralong glucose-lowering and stabilizing effect. In this study we evaluated the efficacy of IDeg in controlling glycemic variability in diabetic hemodialysis patients comparing to IGlar using CGM system.

【Methods】Eight relatively poor-controlled (HbA1c>8.0 %) diabetic hemodialysis outpatients treated with IGlar were enrolled in this study after appropriate IC. Subjects were then monitored overall 72-hours glycemic control, on both hemodialysis day (HD) and non-hemodialysis days (free day: FD), by CGM. Various doses of IGlar were converted to the same dose of IDeg, and glycemic controls were compared in each patient.

【Results】As shown in figure, the plasma glucose curves under IGlar treatment on HD steeply declined then increased compared to FD. On the other hand, the plasma glucose variations in IDeg-treated patients were similar between HD and FD. More importantly, the mean amplitude of glycemic excursions (MAGE) under IGlar treatment on HD was significantly higher than in IDeg-treated group (122.3+38.3 mg/dL vs 66.7+22.1 mg/dL, p<0.001).

【Conclusions】In our study, IDeg, with its slow release of insulin, could be promising candidate in the treatment in diabetic hemodialysis patients.