Nutritional Status Is the Strongest Factor for Improvements in Insulin Resistance Mediated by Hemodialysis (HD) in Patients with Type 2 Diabetes.

医療法人衆和会　長崎腎病院　長崎腎クリニック

○Satoshi Funakoshi, Jyunichiro Hashiguchi, Tayo Kawazu, Takuya Kubara, Kenji Sawase and Takashi Harada.

Objective: Changes in C-peptide index (CPI) and HOMA-R before and after hemodialysis (HD) were compared to explore factors associated with insulin resistance in diabetic patients receiving HD.

Methods: Fasting blood samples were drawn from type 2 diabetic patients receiving maintenance HD but not insulin therapy at our clinic before HD on the first day of the week they went on HD (pre-HD) as well as on the next day (post-HD). Then CPI and HOMA-R were calculated from serum glucose, C-peptide and Immunoreactive Insulin (IRI) values to examine correlations between changes in CPI, HOMA-R, serum parameters and patient characteristics.

Results: The mean post-HD CPI and HOMA-R were significantly lower than the mean pre-HD values (CPI; 6.7 ± 2.7 vs. 8.1 ± 3.3 ng/mL, HOMA-R; 0.7 ± 0.3 vs. 1.1 ± 0.3 μ U/mL, respectively) in the 19 type 2 diabetic patients (men/women, 12/7) included in the study. The rate of decrease in CPI and HOMA-R was strongly positively correlated with geriatric nutritional risk index (GNRI) ($R2 = 0.6423$) in these patients, while it was not correlated with their glycoalbumin (GA) or fasting glucose values.

Conclusions: Despite reports that HD leads to resolution of uremia and excessive fluid overload resulting in improvements in insulin resistance, to date, very few reports compared insulin resistance before and after HD. This study showed that the rate of decrease in CPI was not increased in patients with favorable glycemic control but significantly increased in those with favorable nutritional status, suggesting that the patient's overall status may have a role to play in HD-mediated improvements in insulin resistance in the short term.