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Usefulness of continuous glucose monitoring of blood glucose control in patients with diabetes undergoing hemodialysis: A prospective cohort study

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Objectives: Blood glucose stability has recently been considered important in the treatment of diabetes. Both hypoglycemia and hyperglycemia can frequently occur in patients with diabetes undergoing hemodialysis. This study aimed to determine the usefulness of continuous glucose monitoring (CGM) for glycemic control and glycemic variability stabilization in patients with diabetes undergoing hemodialysis.

Methods: Eighteen patients aged ≥18 years with type 1 or 2 diabetes and ≥3 months on hemodialysis at the Eulji Medical Center, Daejeon, Republic of Korea between November 2021 and May 2022 were included. Patients underwent **7**-day CGM twice: the baseline study period (T0) and the follow-up study period (T1), at a 12-week interval. Physicians modified the treatment strategy according to the T0 results, and then patients conducted T1. As indicators of glycemic control, the mean glucose levels, glycated hemoglobin A1c (HbA1c), and time in range were measured. As indicators of glycemic variability, standard deviation (SD) and %coefficient variation (%CV) were measured.

Results: Data from 18 patients were analyzed. The mean glucose levels, HbA1c, SD, and %CV improved in T1 compared to T0 ($P<0.05$). During T0, the mean glucose level was significantly lower on a day with hemodialysis than on a day without ($P<0.05$), and SD and %CV were significantly higher on a day with hemodialysis than on a day without ($P<0.05$). After the physicians modified the treatment according to the T0 results, there were no differences in the mean glucose levels, SD, and %CV between days with and without hemodialysis during T1.

Conclusions: CGM could be a promising tool for individualizing treatment strategies in patients with diabetes undergoing hemodialysis.

Figure 1. Changes in glycemic markers and continuous glucose monitoring (CGM) metrics