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Correlation between phosphate binder and arteriovenous fistula malfunction

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Objectives : If arteriovenous fistula malfunction occurs, hemodialysis cannot be performed sufficiently. This affects the patient's life and quality of life. It is well known that serum phosphorus levels affect arteriovenous fistula malfunction. However, although each type of phosphate binder has different ingredients and potency, it is not clear whether there is a correlation between the type and arteriovenous fistula malfunction. This study aims to analyze the risk factors arteriovenous fistula malfunction and whether there are differences depending on the type of phosphate binder.

Methods : We retrospectively analyzed patients who underwent arteriovenous fistula surgery and hemodialysis at our hospital from 2016 to 2023. The follow-up period for patients was 1 year. Risk factors affecting arteriovenous fistula malfunction were analyzed using the cox proportional hazards model. Statistical significance was set at a p value of <0.05 .

Results : 69 people were enrolled, 42 of whom were male (60.9 %). The average age of the patient's was 67.16 ± 10.92 . There was a significant correlation between arteriovenous fistula malfunction and serum calcium and phosphorus levels respectively ($P = 0.018$, $P = 0.04$). Serum albumin levels were also significantly correlated with arteriovenous fistula malfunction ($P = 0.002$). Among phosphate binders, calcium acetate and sevelamer had no significant correlation with arteriovenous fistula malfunction. ($P = 0.520$, $P = 0.374$).

Conclusions : Higher calcium and phosphorus levels were associated with increased risk of arteriovenous fistula malfunction. However, the type of phosphate binder was not significantly correlated with arteriovenous fistula malfunction.