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Effect of renal function and proteinuria on survival of diabetic foot ulcer

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Objectives: Diabetic foot ulcer (DFU) is one of common complications in diabetic patients along with diabetic nephropathy. DFU that is not properly treated leads to surgical intervention and amputation, as a result, affects the patient's life of quality and mortality.

Methods: We retrospectively reviewed hospitalization data of DFU patients from Bucheon St.Mary's hospital, from Jan. 2020 and Dec. 2021. Patient demographic data and laboratory data were collected for analysis. The proteinuria of the patient was calculated with protein creatinine(P/C) ratio of spot urine. Group 1 was defined P/C ratio was less than 0.3, group 2 was less than 0.3 exceeded 1, group 3 was less than 1 exceeded 3, group 4 was more than 3 or end state renal disease patients who did not urinate.

Results: 62 patients were admitted for surgical treatment of DFU, and 20 patients underwent flap surgery. Of the 62 patients, 51 were male and 11 were female patients. The mean patient age was 61.87 (range: 26-84). The mean creatinine is 2.75 (range: 0.51-15.09), the mean glomerular filtration rate(GFR) is 52.76 (range: 3 -195). The mean serum albumin is 3.57 (range: 1-4.8), the mean urine P/C ratio is 2.67 (range 0-29.1). Group 4 had a higher risk with a significant probability of reoperation compared to other cases.(Harzard ratio (HR) [95% confidence interval (CI)]: 11.08 [1.97, 62.50]; p=0.006). The decrease in GFR in patients served as a factor that increased the risk of amputation due to DFU. (HR [95% CI]: 1.09 [1.01, 1.20]; p=0.03)

Conclusions: Through the above results, we found that renal function and the amount of proteinuria act as important factors in the prognosis of the DFU.