

Congress Abstract

# Morphological and Metabolic Predictors of Ulcer Recurrence on Patients Receiving Programmed Hemodialysis

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Proceedings of Central Asian Congress of Nephrologists with International Participation, October 9-10, Aktau, Kazakhstan

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## ABSTRACT

**Background:** Patients with end-stage chronic kidney disease have an increased risk of recurrent gastrointestinal bleeding due to a combination of uremic thrombocytopathy, anemia, nutritional deficiency, microcirculatory disorders, and regular anticoagulation during hemodialysis. However, the prognostic value of ulcer morphology and the intensity of acid-suppressive therapy in this population has not been adequately studied.

**Aim:** To determine endoscopic, laboratory, and therapeutic factors associated with ulcer recurrence in patients with end-stage chronic kidney disease receiving programmatic hemodialysis. **Materials and Methods.** A prospective observational analysis included 84 patients on program hemodialysis who experienced non-variceal ulcer bleeding. Recurrence was recorded in 22 patients, while no recurrence was observed in 62. The location and size of the ulcer defect, endoscopic stigmata of bleeding according to the Forrest classification, hemoglobin and total protein levels, mineral metabolism parameters, and proton pump inhibitor therapy regimen were assessed. Associations were assessed by calculating odds ratios with 95% confidence intervals.

**Results:** The most significant association with recurrence was found for ulcer defect size. Ulcers larger than 20 mm were detected in 36.4% of patients with recurrence and in 11.3% of patients without a recurrence; their presence increased the odds of recurrence by 4.49 times (OR = 4.49; 95% CI 1.39–14.49;  $p < 0.05$ ). In contrast, ulcer defects smaller than 10 mm occurred in 18.2% and 53.2% of cases, respectively, and were associated with a lower likelihood of recurrence (OR = 0.20; 95% CI 0.06–0.66;  $p < 0.01$ ).

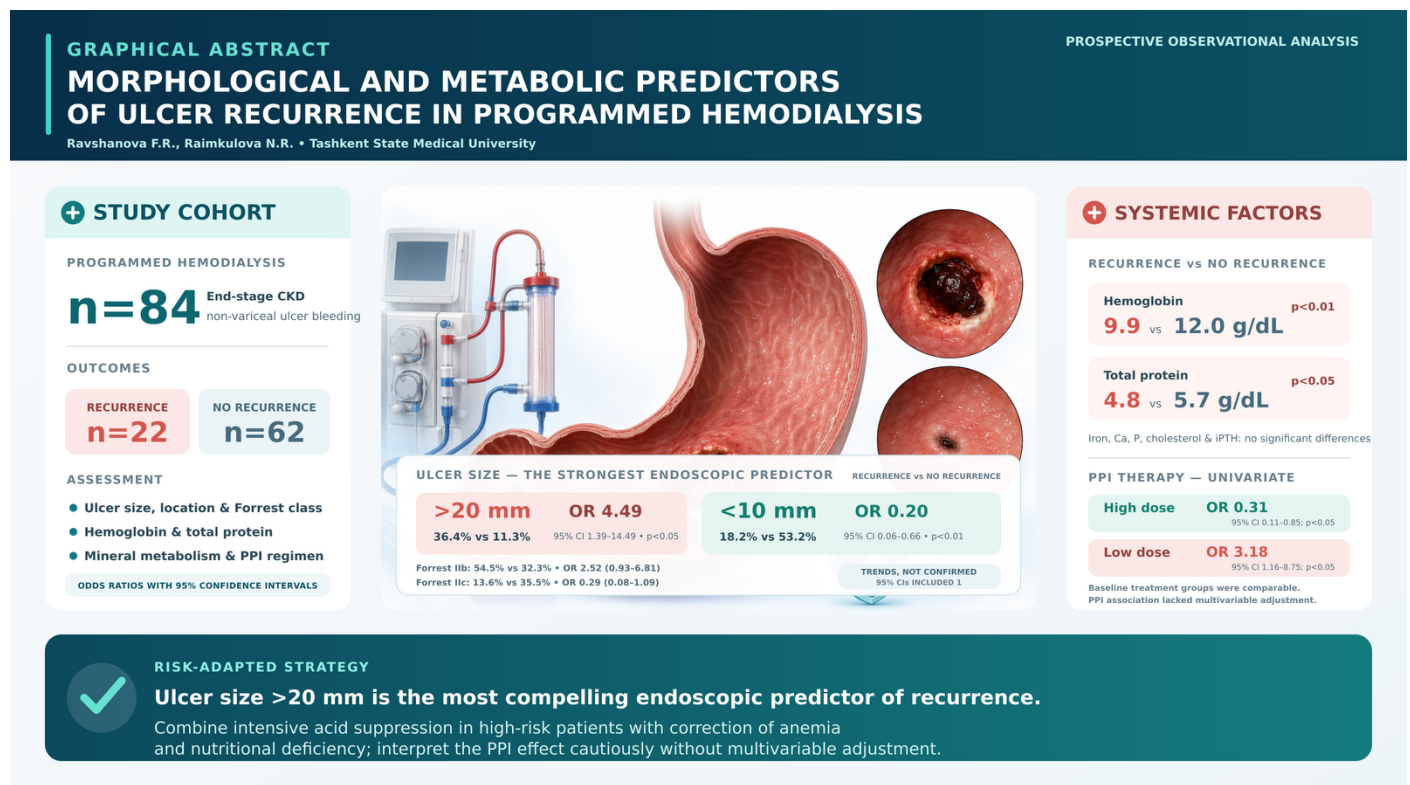
Attached Forrest IIb thrombus was more often detected in patients with recurrence—54.5% versus 32.3% (OR = 2.52; 95% CI 0.93–6.81), while pigmented Forrest IIc spots were more often detected in patients with a favorable course—35.5% versus 13.6% (OR = 0.29; 95% CI 0.08–1.09). However, the confidence intervals for these features included unity, which does not allow them to be considered statistically confirmed independent predictors. Relapse was accompanied by more severe anemia: the median hemoglobin was 9.9 g/dL versus 12.0 g/dL in patients without relapse ( $p < 0.01$ ). A decrease in total protein was also observed: 4.8 g/dL versus 5.7 g/dL ( $p < 0.05$ ). Serum iron, calcium, phosphorus, cholesterol, and intact parathyroid hormone levels did not differ significantly.

In univariate analysis, the use of high-dose proton pump inhibitors was associated with a reduced odds of relapse (OR=0.31; 95% CI 0.11–0.85;  $p < 0.05$ ), while low-dose therapy was associated with an increased odds (OR=3.18; 95% CI 1.16–8.75;  $p < 0.05$ ). The initial treatment groups were comparable in terms of clinical and demographic

characteristics, ulcer size and location, Forrest stigmata, comorbidities, and concomitant pharmacotherapy.

**Conclusion:** Ulcer recurrence in patients on scheduled hemodialysis is determined by the interaction of local morphological and systemic metabolic factors. The most compelling endoscopic predictor is ulcer size greater than 20 mm, while anemia and hypoproteinemia reflect a decrease in systemic reparative reserve. High-dose PPI therapy is associated with a lower risk of recurrence; however, the lack of multifactorial adjustment precludes the independent assessment of this effect. These results support a risk-adapted strategy combining intensive acid suppression in high-risk patients with mandatory correction of anemia and nutritional deficiencies.

**Keywords:** Metabolic; Hemodialysis



**Figure 1:** Morphological and metabolic predictors of ulcer recurrence in patients receiving programmed hemodialysis.