

# ERYPTOSIS IN PD PATIENTS: ANALYSIS IN STABLE CONDITION AND DURING PERITONITIS

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## INTRODUCTION

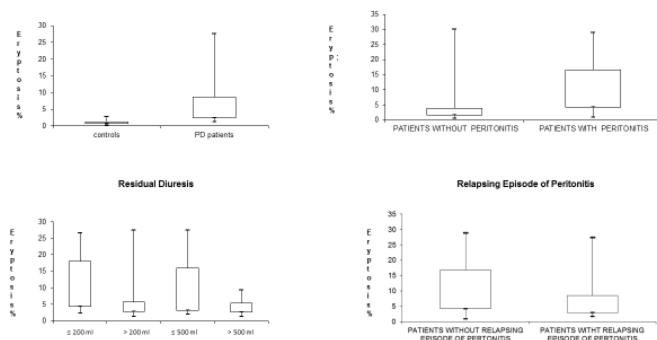
Peritonitis and exit site infections are the major complications of Peritoneal Dialysis (PD). Erythrocytes (Red Blood Cells - RBCs) are extremely sensitive cells and are important health indicators. RBCs undergo programmed cell death, known as eryptosis. Unfortunately, little is known about pathogenesis of eryptosis in PD patients (pts) in stable conditions and during peritonitis. The aim of this study was to describe eryptosis level in PD pts and evaluate this parameter in PD pts with peritonitis.

## METHODS

We enrolled 46 PD patients without any history of systemic inflammation and peritonitis in the last 3 months, as PD patients in stable conditions, 31 PD patients with acute episode of peritonitis and 17 healthy subjects (CTR). For patients with peritonitis, we collected blood sample at the first day of peritonitis. We divided PD stable patients in 2 groups according to the presence of residual diuresis. Eryptosis was estimated using flow cytometric analyses. CRP and d pro-inflammatory cytokines levels (IL-1 $\beta$  and IL-6) were measured.

## RESULTS

Eryptosis was significantly higher in PD pts than in CTR ( $p < 0.001$ ). Eryptosis levels did not differ significantly between PD pts with and without diabetes, with and without hypertension, with and without cardiovascular disease. Eryptosis showed no significant differences between pts treated with CAPD/APD, with Kt/Vurea value  $\leq 1.7$  and  $> 1.7$ . 23/46 pts had a residual diuresis. Eryptosis showed significantly lower levels in PD pts with residual diuresis (3.7%, 2.6-5.6 vs 5%, 3.1-16;  $p = 0.03$ ). A significant negative correlations between eryptosis and residual GFR (Spearman's  $\rho = -0.51$ ,  $p = 0.01$ ) and diuresis volume (Spearman's  $\rho = -0.43$ ,  $p = 0.05$ ) were found. Eryptosis resulted significantly higher in PD pts with peritonitis (9.6%; IQR 4.2-16.7 vs 2.7%; IQR 1.6-3.9 in stable pts, ( $p < 0.0001$ ). Eryptosis showed no significant differences between Gram-positive e Gram-negative peritonitis. The median eryptosis did not differ in patients with relapsing episode of peritonitis ( $p = 0.32$ ) and in patients with refractory peritonitis ( $p = 0.64$ ). Significant positive correlations were observed between eryptosis and CRP, IL-1 $\beta$ , IL-6 (Spearman's  $\rho$  CRP = 0.46, Spearman's  $\rho$  IL-1 $\beta$  = 0.42, Spearman's  $\rho$  IL-6 = 0.6, all  $p < 0.001$ ).



## CONCLUSION

In PD pts, an increase in eryptosis may result from the progressive residual diuresis loss and the lower uremic toxins clearance. Furthermore, eryptosis correlates with the inflammatory state of peritoneal membrane damage, confirming the diagnosis of peritonitis and monitoring the state of peritoneal membrane.