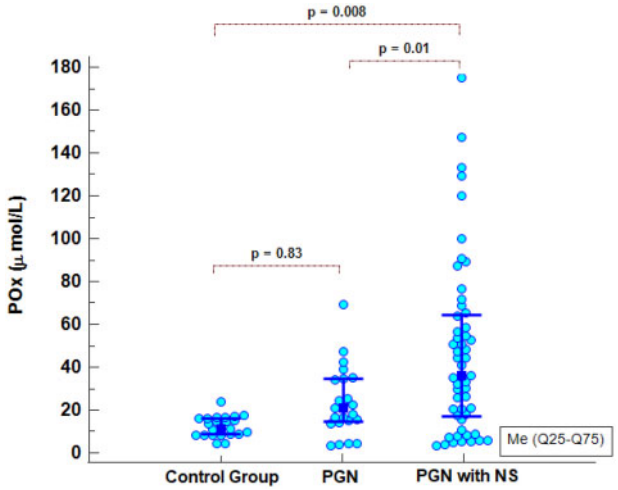

MO311 Figure 1: POx concentration in the healthy volunteers and the PGN patients stratified by the presence of NS.

MO311

THE ASSOCIATION BETWEEN NEPHROTIC-RANGE PROTEINURIA AND OXALATE METABOLISM VIOLATION IN PATIENTS WITH PRIMARY GLOMERULONEPHRITIS

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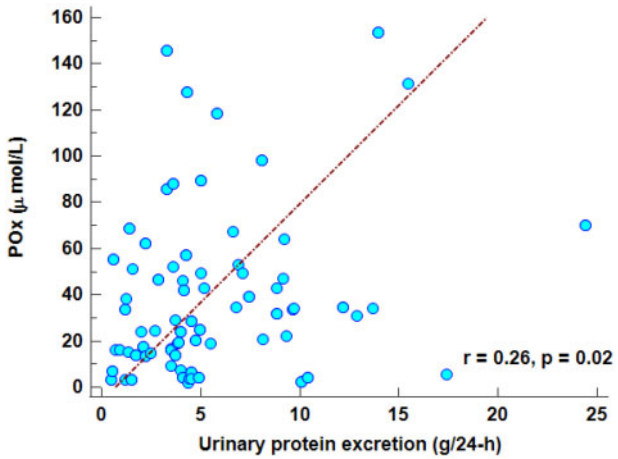
BACKGROUND AND AIMS: There is a general lack of scientific research on oxalate metabolism in primary glomerulonephritis (PGN) patients. The present study aimed to evaluate plasma oxalic acid (POx) concentration and urinary oxalate (UOx) excretion in PGN patients and determine the role of nephrotic syndrome in oxalate metabolism, which has never before been reported.

METHOD: A total of 100 participants were enrolled in this cross-sectional single-center study, including 76 PGN patients aged 41 ± 1.83 years and 24 healthy volunteers on a free-choice diet who served as a control reference group to evaluate POx concentration. Among the patients were 53 (69.7 %) patients with nephrotic syndrome (NS) and biopsy-proven PGN and 23 (30.3 %) patients with a clinical diagnosis of PGN. All patients were treated according to KDIGO Clinical Practice Guidelines for Glomerulonephritis.

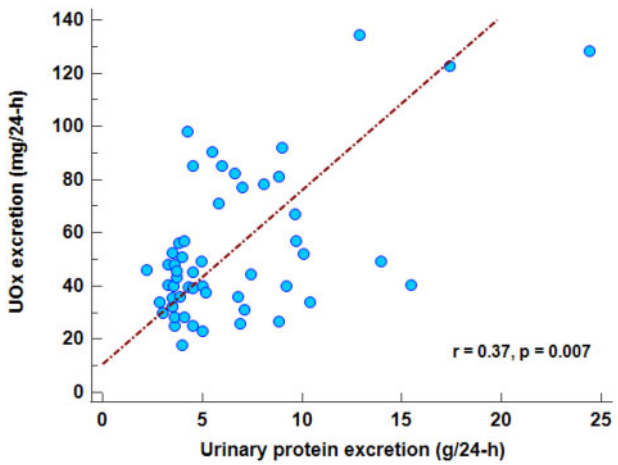
In addition to routine hematological and biochemical tests, POx concentration and UOx excretion were found in all study participants. POx was measured spectrophotometrically using a commercially available kit (MAK315, Sigma, Spain). Daily UOx excretion was determined using an oxalate oxidase/peroxidase reagent (BioSystems, Spain). Urine protein excretion (UPE) was measured in a 24-h urine collection. The glomerular filtration rate (GFR) was calculated using the CKD-EPI formula.

The data were presented as the median and the interquartile ranges [Me (Q25-Q75)] and compared using the Mann-Whitney test. The Spearman correlation test and the partial correlation coefficient were used to evaluate the association between the examined markers.

RESULTS: POx concentration was significantly higher in the patients with PGN compared with the healthy volunteers: 29.9 (14.9-51.7) vs 18.9 (16.2-23.8) μmol/L, p = 0.01. Although the patients with NS demonstrated a statistically higher GFR level compared with the patients with mild proteinuria [70.5 (47-87) vs 50 (22-76.2) mL/min/1.73 m2, p = 0.01], these patients also had the highest POx level (Fig. 1). Moreover, POx concentration was significantly associated with GFR (r = -0.27, p = 0.005), serum phosphate (r = 0.26, p = 0.007) and UPE (Fig. 2) levels. No significant differences were found in UOx excretions between the groups. However, the higher level of UPE was, the higher level of UOx was observed in the PGN patients with NS (Fig. 3). The partial correlation analysis confirmed a strong association between UPE and POx concentration independently of the patients' age, gender, GFR and serum phosphate levels (r = 0.22, p = 0.04).



MO311 Figure 2: The association between UPE and POx concentrations in the PGN patients.



MO311 Figure 3: The association between urinary protein and oxalate excretions in the PGN patients with NS.

CONCLUSION: Nephrotic-range proteinuria was significantly associated with the elevation of POx concentration and UOx excretion in the PGN patients. More research

with a larger cohort is needed to confirm this preliminary evidence and validate NS as a risk factor for oxalate metabolism violation in PGN patients.