

# THE STUDY OF BIOMARKERS OF EARLY RENAL TUBULAR DAMAGE IN PATIENTS WITH GOUT

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## Objectives:

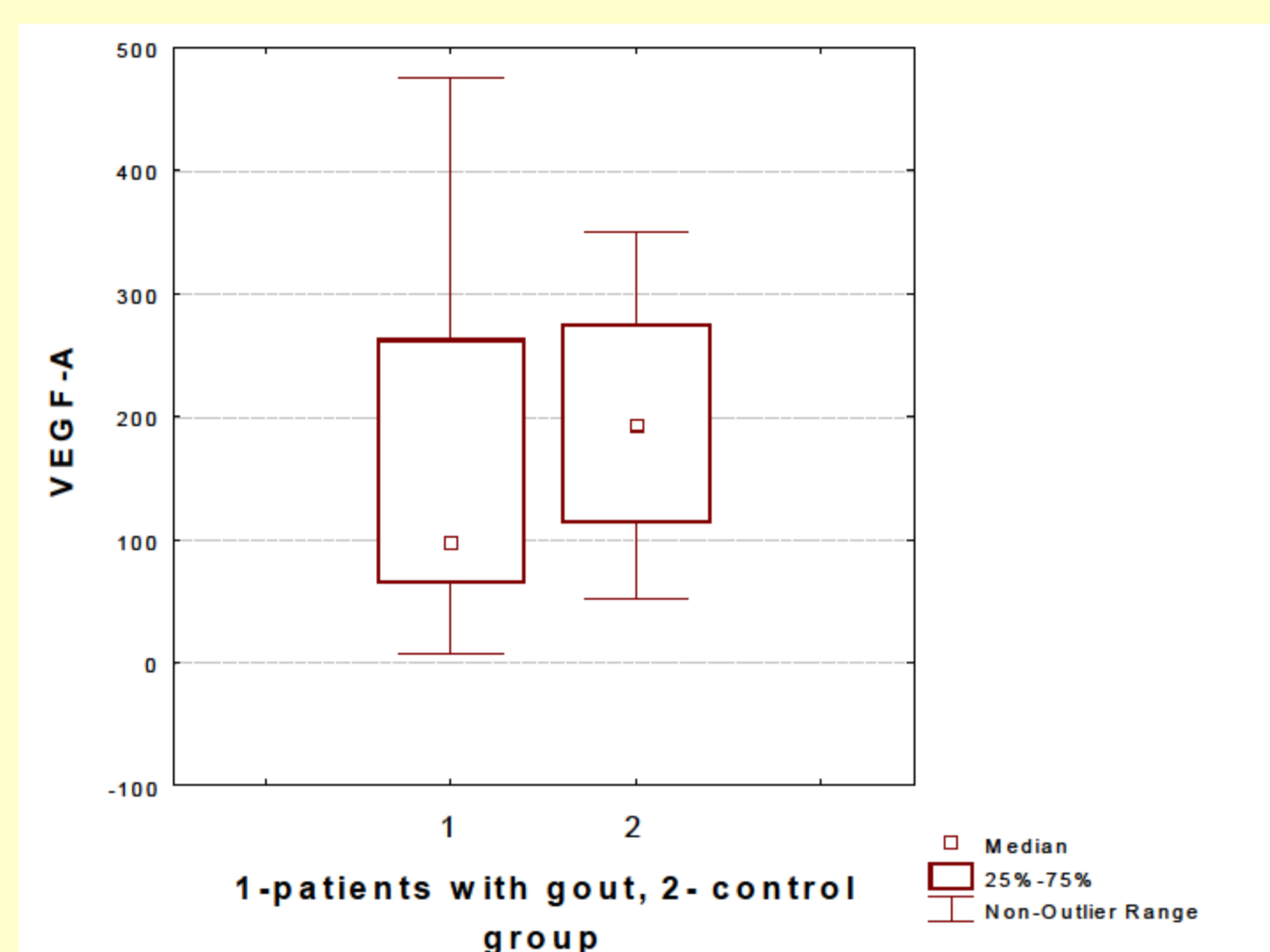
Many patients with gout can have CKD at a later stage, as there are no clinical manifestations for a long time. In this connection it is important to study biomarkers of kidney damage at the preclinical stage of CKD. Most of these markers are compounds expressed in the tubular apparatus of the kidney and excreted in the urine in increased amounts if this organ is damaged. These include IL-18, KIM-1, NGAL, VEGF, as well as a number of enzymes that normally are localized in the brush border of proximal tubules.

The aim of the study: to determine level of kidney damage markers in patients with gout without clinical manifestations of CKD.

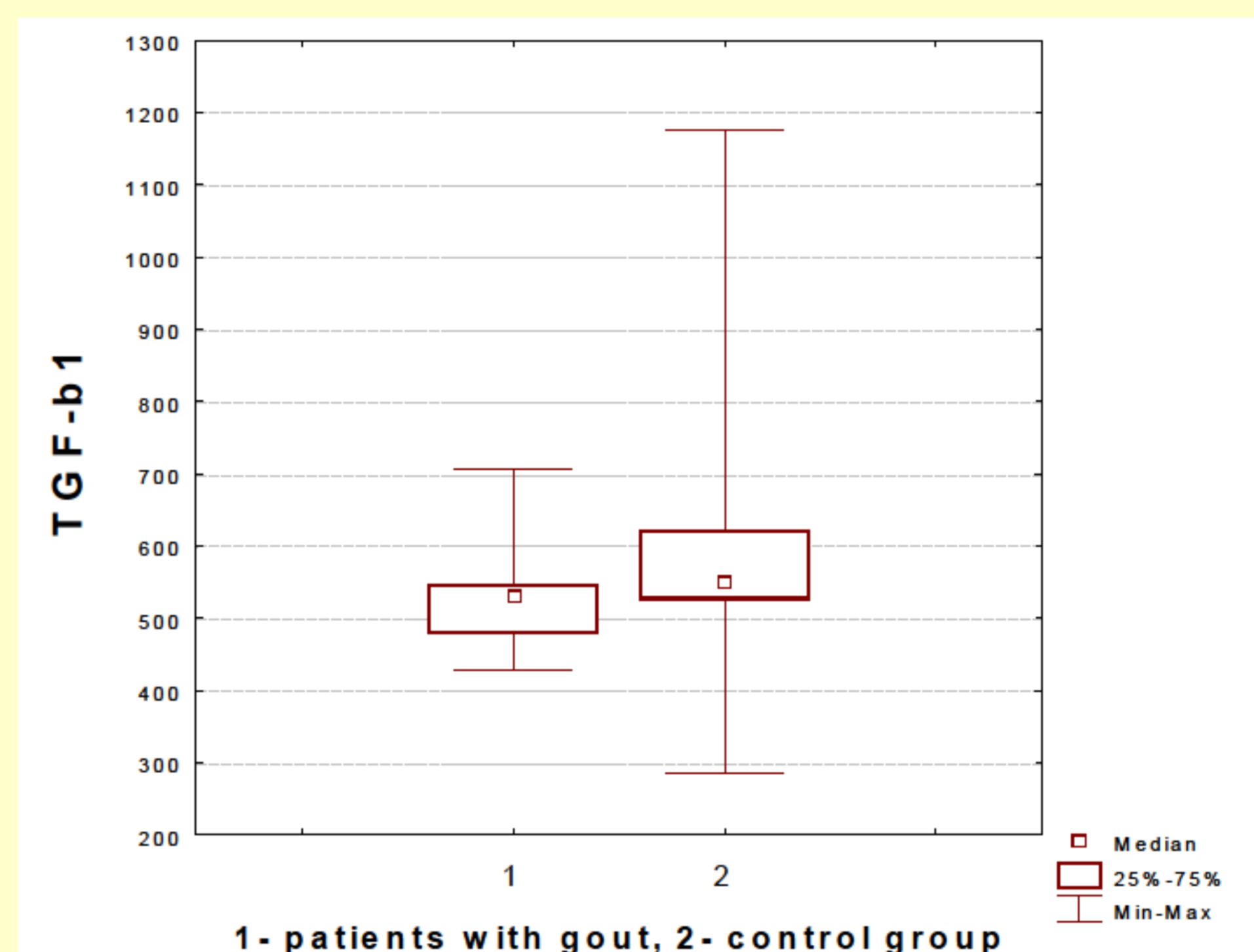
## Methods:

We examined 33 gouty patients with normal GFR, with normal microalbuminuria level and kidney ultrasound, thus without any CKD evidence. The average age of the patients was  $52 \pm 9.4$  years, GFR  $92.2 \text{ ml/min/1.73 m}^2$  [85; 101,8]. The control group consisted of 25 healthy volunteers. The average age of them was  $47.9 \pm 5.6$  years, GFR  $91.2 \text{ ml/min/1.73 m}^2$  [88,7; 111,6]. The examination included the detection by ELISA, VEGF, TGF $\beta$ 1. Statistical analysis was carried out using a standard package Statistics 6.0.

VEGF-A levels in patients with gout and control groups



TGF $\beta$ 1 levels in patients with gout and control groups



## Results:

The group of patients had significantly lower levels of a marker of angiogenesis VEGF-A compared with healthy volunteers:  $97 \text{ pg/ml}$  [64.6; 262.8] vs  $193.3 \text{ pg/ml}$  [113.8; 275.6],  $p < 0.05$ . TGF- $\beta$ 1 as a marker of fibrosis in patients with gout was significantly lower than in the control group  $529.5 \text{ pg/ml}$  [478.6, 546.5] vs  $549.8 \text{ pg/ml}$  [526; 621.5],  $p < 0.05$ . Acute tubule injury marker KIM-1 was not significantly different in patients compared with the control group:  $1.1 \text{ ng/ml}$  [0.7; 1.75] vs  $1.1 \text{ ng/ml}$  [0.9; 1.65],  $p > 0.05$ .

## References:

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3. Bottinger A., Gilbert R.E., Akdeniz A. et al. Urinary transforming growth factor- $\beta$  in patients with diabetic nephropathy: implications for the pathogenesis of tubulointerstitial pathology. Nephrol. Dial. Transplant. 2001; 16: 2442–2443.

## Conclusions:

Patients with gout without clinical manifestations of CKD showed decrease of the VEGF, TGF $\beta$ 1 levels which can indicate the presence of early signs of endothelial dysfunction and renal tubular fibrosis.

