ASSESSMENT OF EARLY THERAPY AND LOW-DOSE OF ERYTHROPOIETIN IN EXPERIMENTAL MODEL OF CHRONIC KIDNEY DISEASE

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BACKGROUND/AIMS

The Erythropoietin (EPO) is an endogenous glycoprotein produced primarily in kidney and its main function is stimulate the production of blood cells to transport oxygen to the tissues. Recent studies have shown a renoprotective EPO effect on ischemic and chronic kidney disease.

The mechanisms of renoprotection include inhibition of apoptosis, inflammation and induction of angiogenesis.

Thus, the aims of this study was verify the potential therapeutic effect of EPO when used early and a low dose of EPO, and if this dose of EPO influences he progression of chronic kidney disease.

METHODS

Male Wistar rats weighing 280-300g underwent 5/6th nephrectomy. They were divided into three groups (n=6): (NX) only nephrectomized, (NX-EPO) nephrectomized and treated with weekly dose of erythropoietin (250UI/kg/ip) and SHAM group.

All animals were euthanized 8 weeks after surgery. Hematocrit, serum creatinine, proteinuria, indirect blood pressure, glomerular score, tubulointerstitial fibrosis and immunohistochemical were assessed.

RESULTS

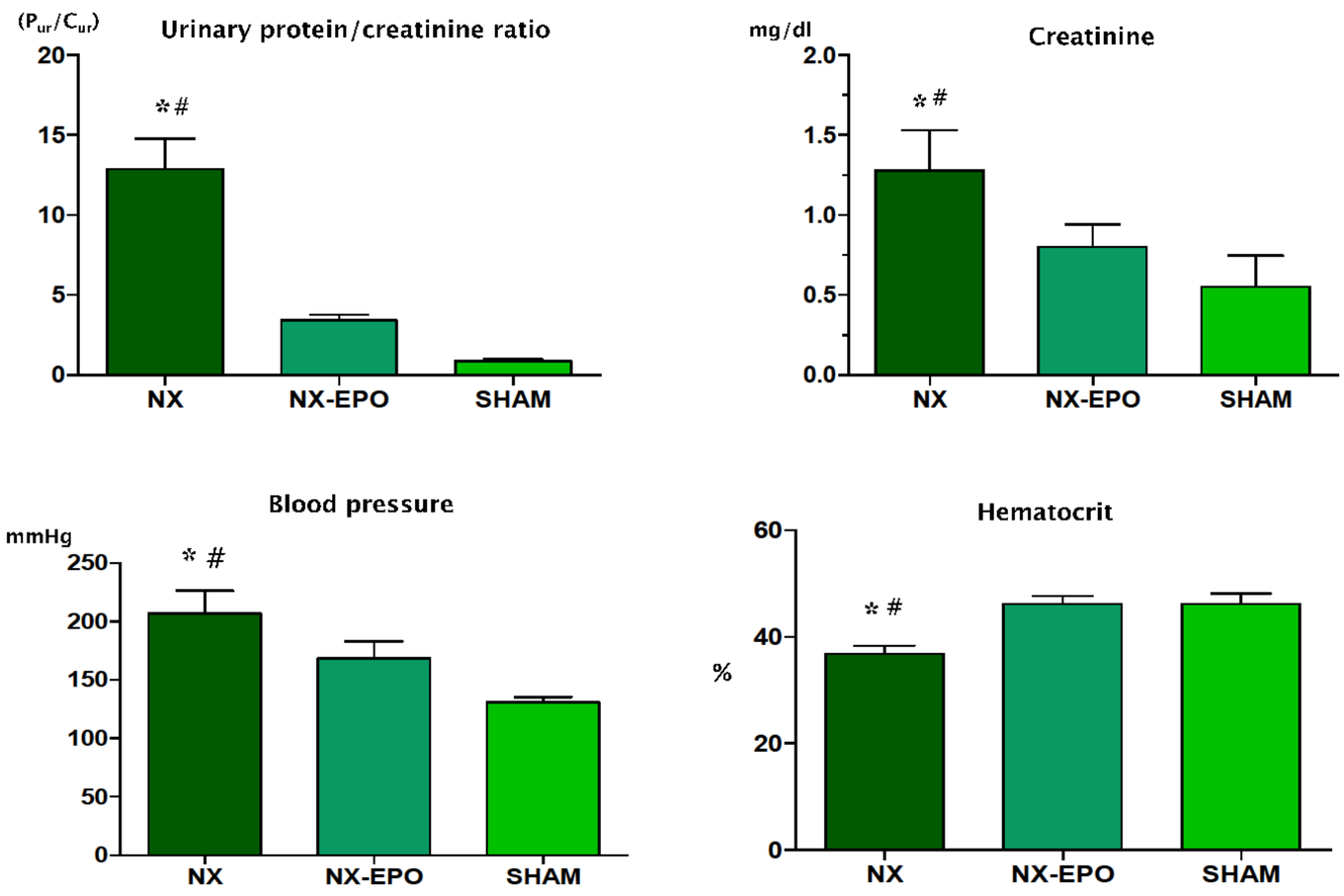

Fig1. Data are expressed as mean ± S.E.M. Comparisons between two groups were made by the One-Way ANOVA; ($P<0.05$)
* *vs.* NX-EPO group, # *vs.* SHAM. All groups N=6 for each group.

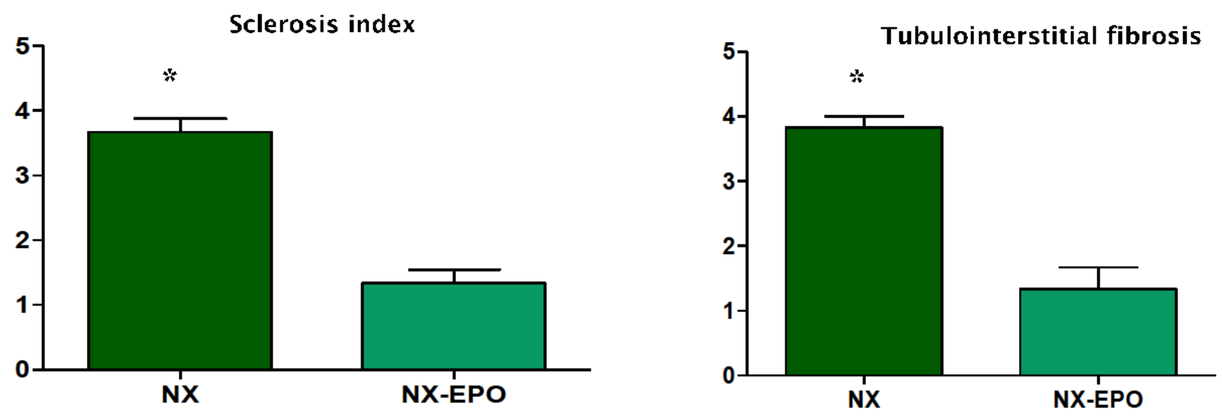

Fig2. Data are expressed as mean ± S.E.M. Comparisons between two groups were made by the unpaired t test; ($P<0.05$)
* *vs.* NX-EPO group . The sclerosis index and tubulointerstitial fibrosis at 8 weeks. NX group was significantly higher than of the NX-EPO. All groups N=6 for each group.

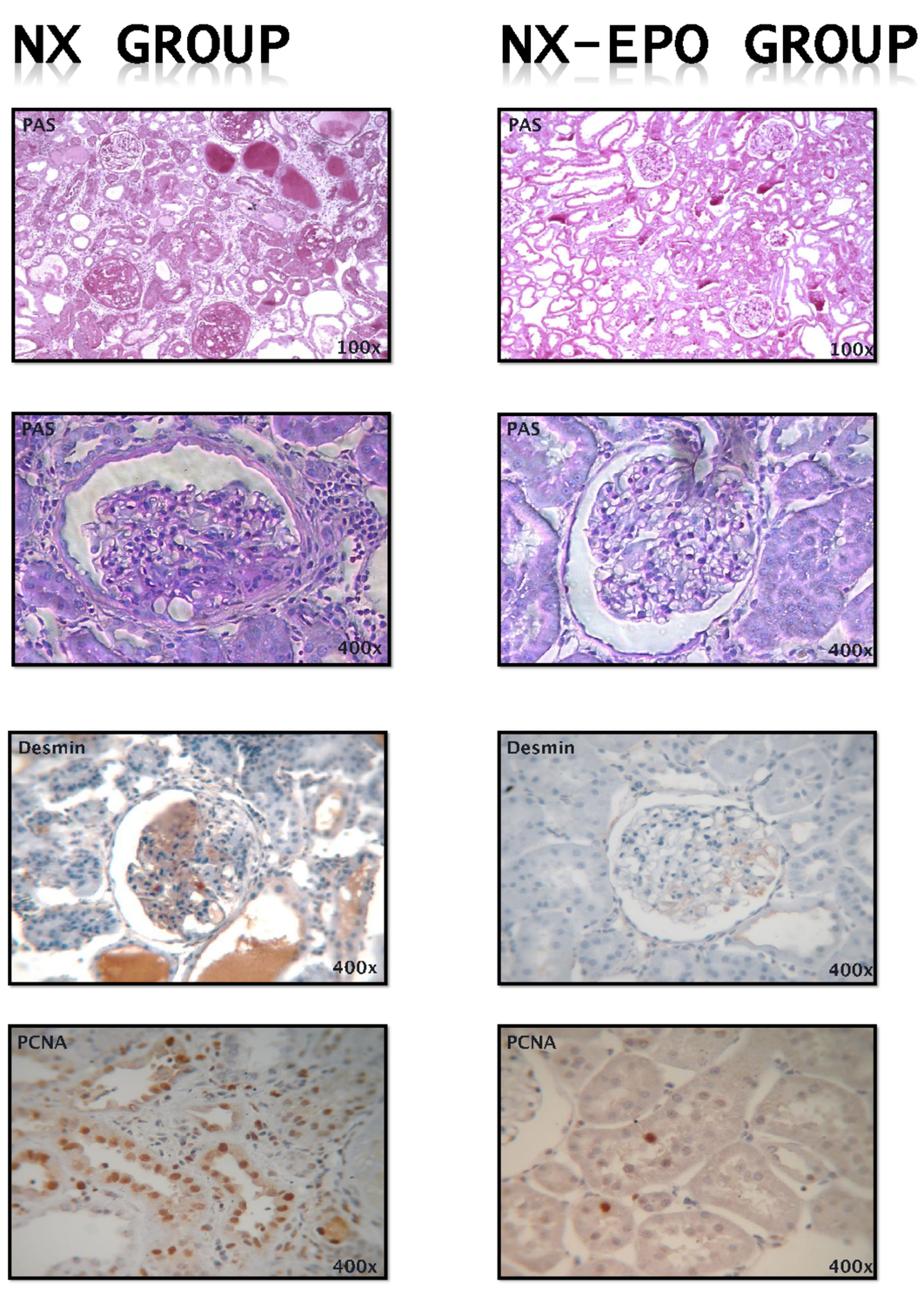

Fig3. Renal sections from nephrectomized rats NX and NX-EPO groups. Stainings for periodic acid schiff (PAS). Immunohistochemical staining for desmin and proliferating cell nuclear antigen (PCNA). All groups N=6 for each group

CONCLUSION

Our study suggests a beneficial effect of a early therapy with low dose of EPO in the progression of experimental chronic renal disease reflected by improvement of serum creatinine, proteinuria and attenuation of glomerular lesion score. We observed a lower expression of desmin in podocytes and lower expression of PCNA in tubular cells regardless of its effect on hematocrit and blood pressure

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L) Renal pathology. L1) Experimental pathology.
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