

Urinary retinol binding protein (RBP) is a marker of the extent of interstitial kidney fibrosis

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Introduction :

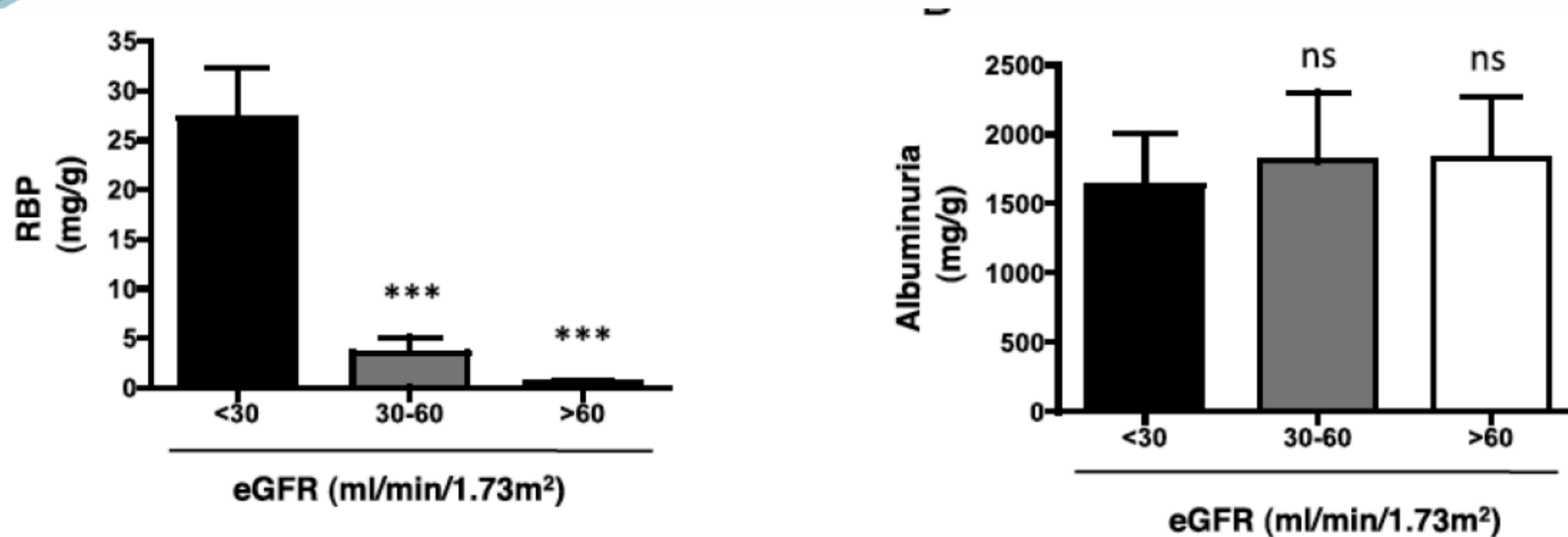
Quantification of interstitial fibrosis (IF) on renal biopsy is associated with renal prognosis in most nephropathies. The aim of our study was to evaluate the diagnostic performance of urinary low molecular weight (LMW) protein concentrations as a method to determine the extent of IF.

Material and methods :

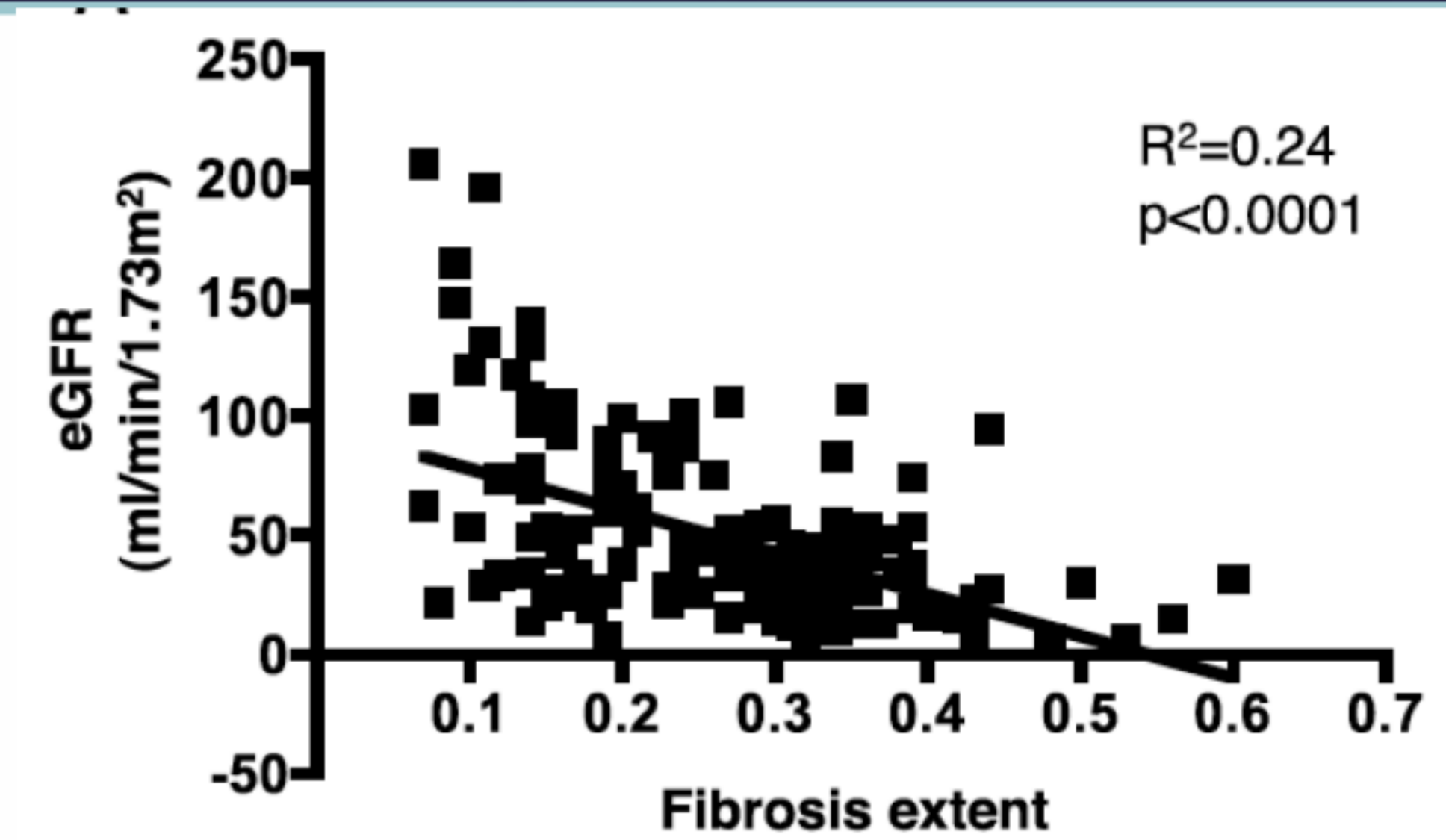
Urine samples of 162 consecutive patients who underwent renal biopsy in our center were prospectively analyzed. Computerized quantification, based on colorimetric analysis of fibrous areas, was used to assess the percentage of IF. Total proteinuria, albuminuria, and urinary levels of retinol binding protein (RBP), alpha1-microglobulin (A1MG), beta 2-microglobulin (B2MG), transferrin, and IgG were measured for each specimen.

Results :

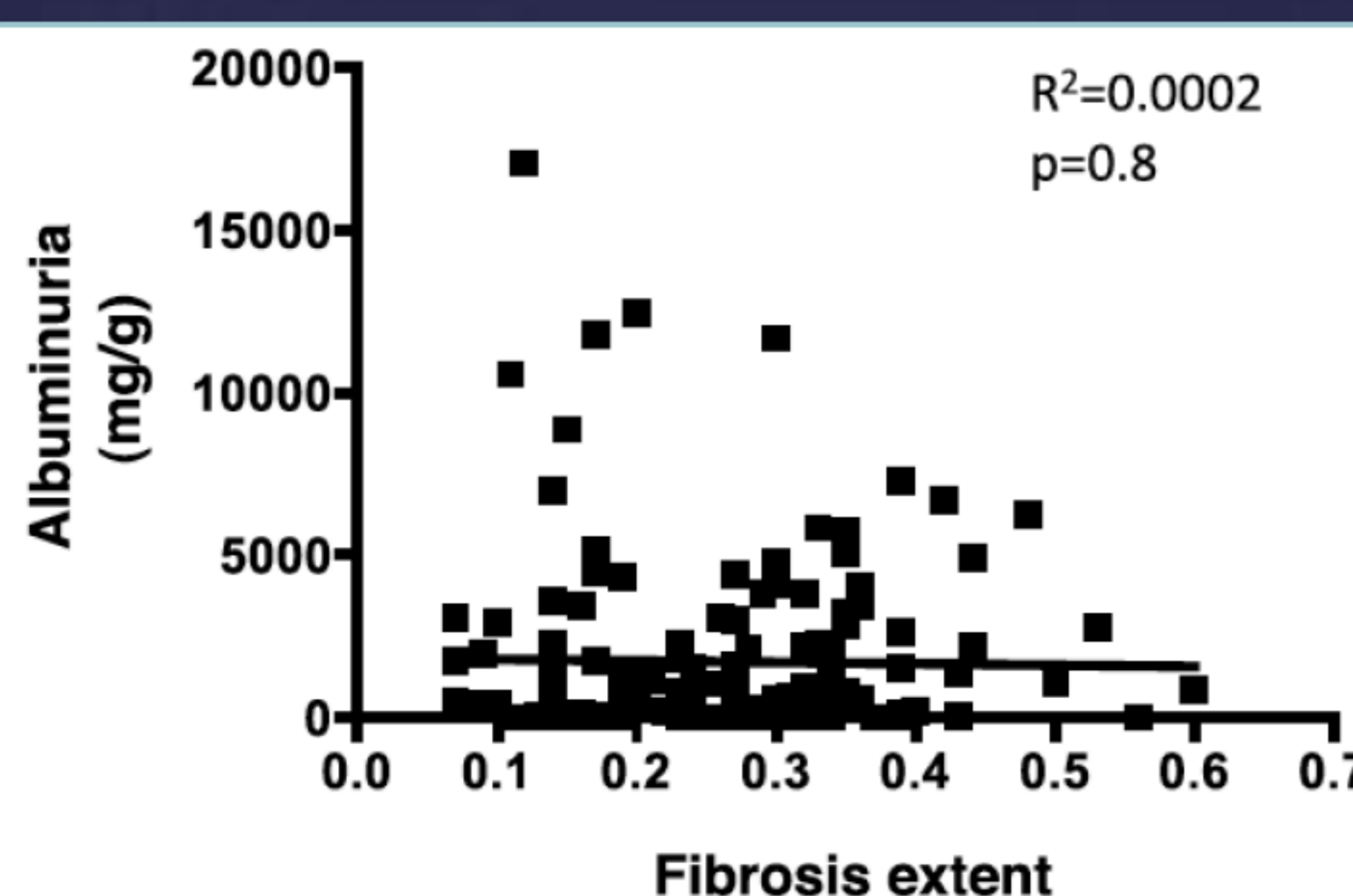
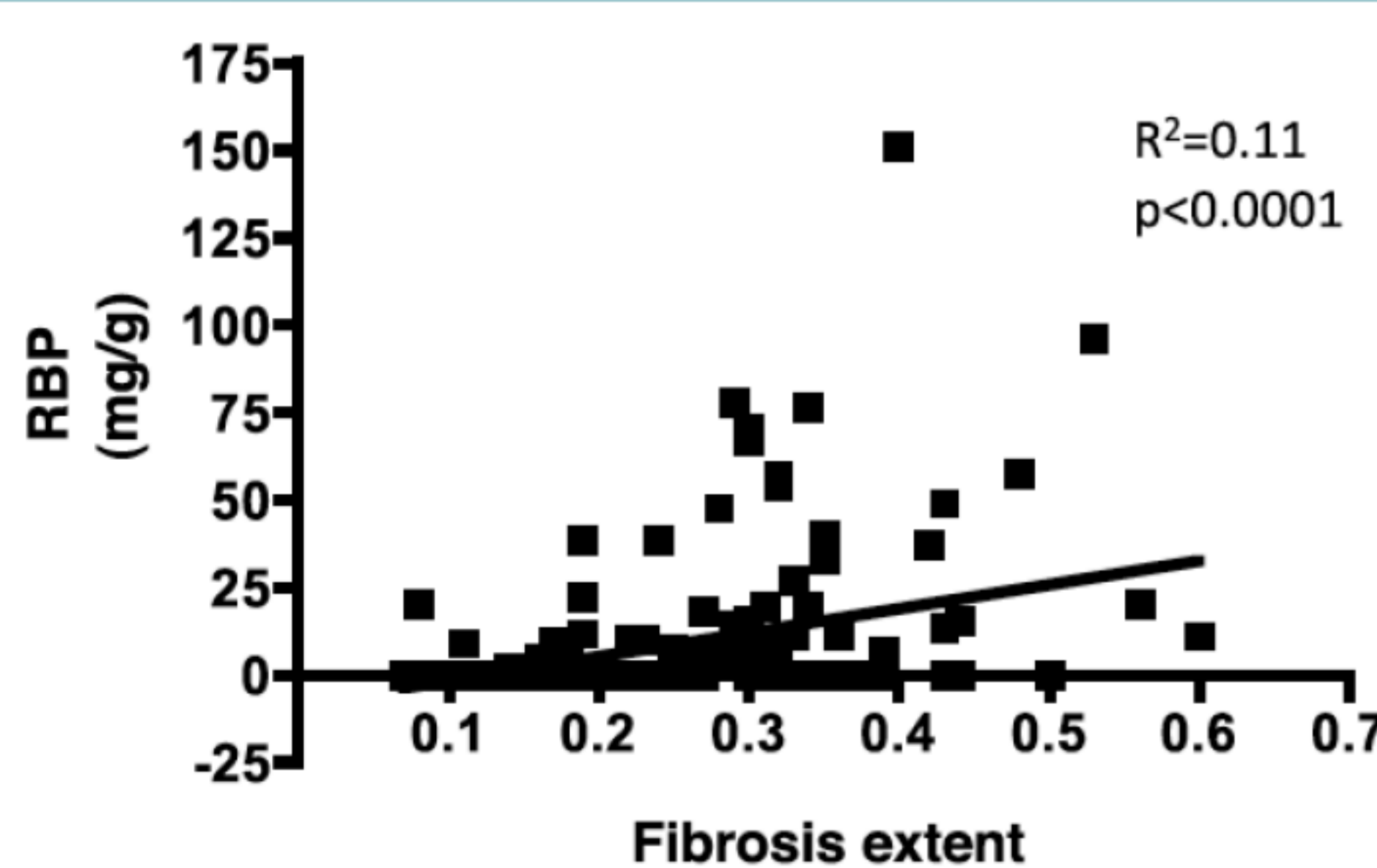
1. Low molecular weight (LMW) proteinuria (RBP) but not albuminuria is associated with low GFR



2. Extent of interstitial fibrosis is associated with estimated glomerular filtration rate (eGFR)



3. Extent of interstitial fibrosis is associated with low molecular weight (LMW) proteinuria (RBP), but not with albuminuria



4. Predictive value of RBP on interstitial fibrosis extent :

- Among LMW proteins (A1MG, B2MG, RBP) the best predictor of IF was RBP
- Multiple linear regression analysis indicated that RBP was associated with IF, after adjustment for eGFR
- A urinary RBP/creat ratio >20 mg/g predicted an IF score above >25% with a specificity of 95% but with a sensibility of only 20%.

Conclusions :

The use of LMW proteinuria and especially urinary RBP levels may be useful to predict the extent of interstitial fibrosis, which is a major prognostic marker in chronic renal disease. Development of composite predictive scores are needed to improve sensibility of this non-invasive prognostic test.

References :

Servais A et al. : Quantification of interstitial fibrosis by image analysis on routine renal biopsy in patients receiving cyclosporine. *Transplantation*, 2007; 84: 1595
 Amer H et al. : Urine high and low molecular weight proteins one-year post-kidney transplant: relationship to histology and graft survival. *Am J Transplant* 2013; 13: 676

