TRAJECTORY OF eGFR CHANGES AMONG KIDNEY TRANSPLANT RECIPIENTS: A COHORT STUDY

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OBJECTIVES

Level of eGFR determines prognosis after kidney transplantation (KTx). We analysed eGFR dynamic among recipients of kidney transplant.

METHODS

We analyzed the Russian Registry of Renal Replacement Therapy with inclusion of kidney graft recipients ≥18 years old with available eGFR for two consecutive time points — December 2012 and December 2013. Values of eGFR were either reported by supervising nephrologists, or calculated by CKD-EPI equation based on provided creatinine level. Slope of eGFR change depending on the initial eGFR at December 2012 was estimated based on non-parametric Sperman's rho correlation coefficient.

RESULTS

Both eGFR values were available for 1,244 recipients of kidney graft. Mean eGFR change during one year was -4.7±11.1 ml/min/1.73m^2 (median -3, IQR -9;0). Almost a half (48.1%) of patients had stable eGFR with minimal changes from -5 to 4 ml/min/1.73m^2.

We also investigated to what extent the slope during one year depends on the initial eGFR value at December 2012. Overall one-year slope was -0.17 per 1 ml/min/1.73m^2 of initial eGFR (P<0.005), suggesting that decrease in eGFR was more prominent among patients with higher baseline eGFR. Slope of eGFR was similar for living related (rho=-0.20, P<0.02) and deceased (rho=-0.21, P<0.0005) graft recipients, as well as for males (rho=-0.17, P<0.0005) and females (rho=-0.18, P<0.0005). Slope of eGFR was higher in age group 65 years and older (rho=-0.35, P<0.02) in comparison with 19-44 (rho=-0.21, P<0.0005) and 45-64 years (rho=-0.18, P<0.0005). Slope of eGFR was higher in patients with interstitial nephritis (rho=-0.30, P<0.0005) and diabetic nephropathy (rho=-0.30, P<0.003), and lower in chronic glomerulonephritis (rho=-0.13, P<0.002), while there was no statistically significant change among patients with polycystic disease (rho=0.02, P=0.87) or congenital abnormalities (rho=-0.17, P=0.08). Slope of eGFR was not statistically significant among recipients 1 year after kidney transplantation (KTx) (rho=-0.12, P=0.17), while it was significantly negative in recipients 1-3 years (rho=-0.21, P<0.0005), 3-4.9 years (rho=-0.16, P<0.01), 5-9.9 years (rho=-0.21, P<0.0005), 10-14.9 years (rho=-0.25, P<0.002), and 15 or more years (rho=-0.25, P<0.05) after KTx.
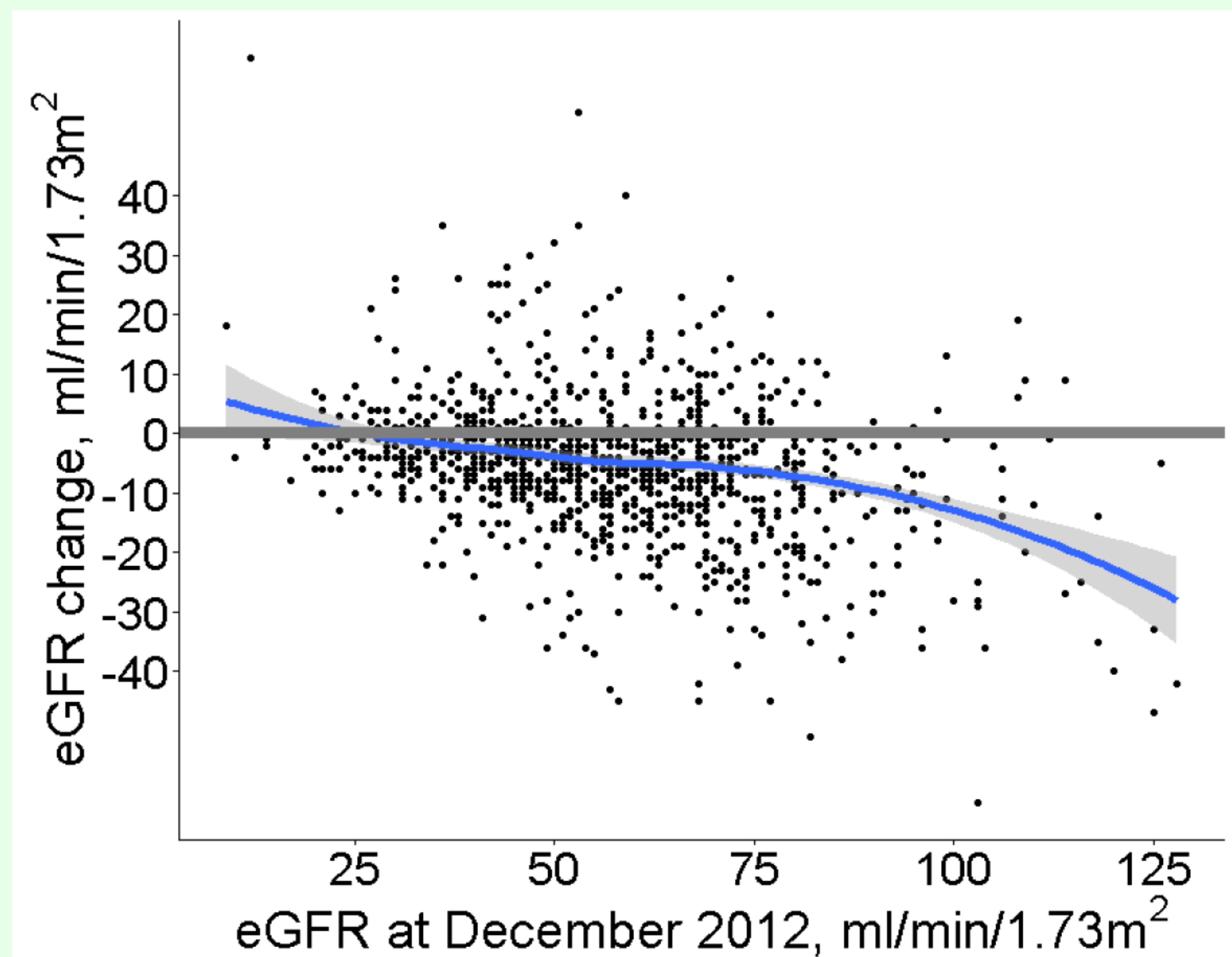
RESULTS

Figure. Changes in eGFR during one year of follow-up

A) Distribution of patients according categories of eGFR change during one year
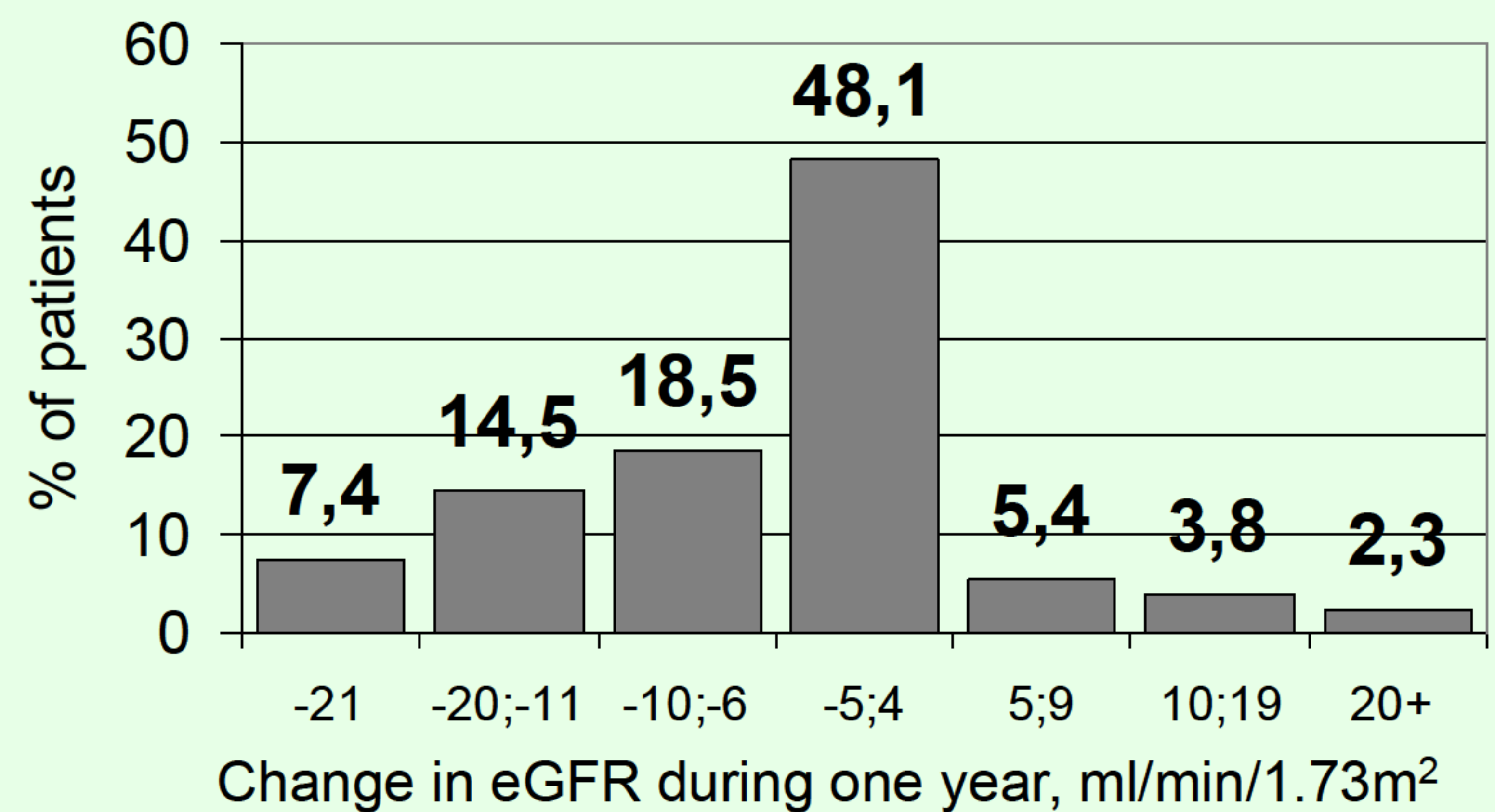
B) Correlation between baseline eGRF and eGFR change during one year

CONCLUSIONS

We found that during one year of follow-up eGFR in patients with kidney transplant decreased in 21.9%, and increased in 6.1% of recipients for 10 and more ml/min/1.73m^2. During one year the decrease in eGFR was more prominent in patients with higher baseline eGFR overall, and in almost all subgroups. Slope of eGFR was higher in patients with diabetes and interstitial nephritis, as well as 65 years and older. The prognostic value and permanent nature of these changes in eGFR should be investigated in further studies.

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