

Assessment of neutrophil gelatinase-associated lipocalin in diabetic patients



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OBJECTIVES

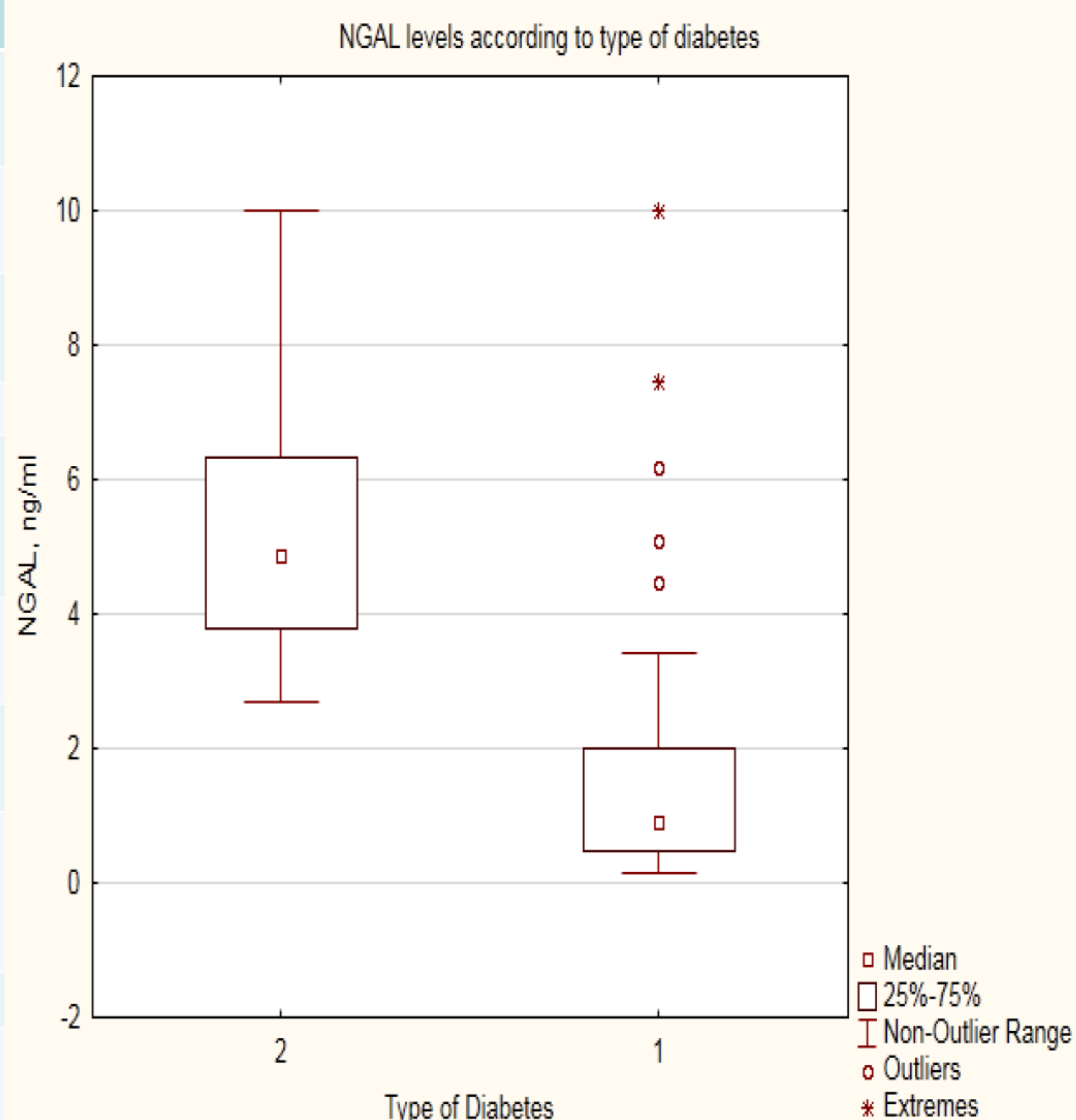
Diabetic nephropathy (DN) is a major cause of morbidity and mortality in type 1 diabetes (T1D) patients and associated with increased cardiovascular risk in type 2 diabetes (T2D) patients. Early detection of DN using neutrophil gelatinase-associated lipocalin (NGAL) assessment can help to reveal predisposed patients to its progression and to prevent progression of DN. Especially important it is in patients with normoalbuminuria. The aim was to determine NGAL concentrations in T1D and T2D patients and its correlation with HbA1c levels and age.

METHODS

57 patients with T1D aged 38,79±10,35 (group 1) and 22 patients with T2D aged 53,15±4,88 (group 2) were included (P<0,001). GFR was calculated by Cockcroft-Gault equation (ml/min/1.73m²). Microalbuminuria was determined in 24-hour collection urine by immunoturbidimetric method. Concentration of NGAL was determined in serum using immunofluorescence assay (ng/ml). Nonparametrics and descriptive statistical methods were used.

RESULTS

Characteristics of patients		
	T1D Me ± Std N=57	T2D Me ± Std N=22
Gender, m/f (% resp)	17/40 (29,8/70,2)	14/8 (63,6/36,4)
Age, years (p<0,001)	38,79±10,35	53,15±4,88
BMI, kg/m ²	25,51±4,61	30,65±7,45
GFR, ml/min/1.73m ² (p<0,01)	96,33±32,79	85,83±20,84
BP Sys, mmHg	124,90±32,8	133,75±12,6
BP Dia, mmHg	80,7±8,6	85,0±10,0
DM duration, years	22,37±8,91	9,82±5,57
HbA1c, %	8,60±1,51	12,17±1,82
NGAL, ng/ml (p<0,01)	1,57±1,87	5,37±2,00



Age and HbA1c levels (8,60% ± 1,51 % in group 1 and 12,17±1,82% in group 2, P<0,001) can affect of NGAL level. The positive correlation between NGAL concentrations and HbA1c levels (r=0,45, P<0,05) was revealed. Positive correlation between age and NGAL level (r=0,38, P<0,05) was determined. Thus age may present impact factor on NGAL levels.

CONCLUSION

T2D is associated with higher level of NGAL compared to T1D. Increase in NGAL levels in patients with T2D may be associated with advanced and long-lasting hyperglycemia as well as with higher age.

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