

Proteinuria is significant predictor of decreased GFR in male but not in female elderly patients



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INTRODUCTION

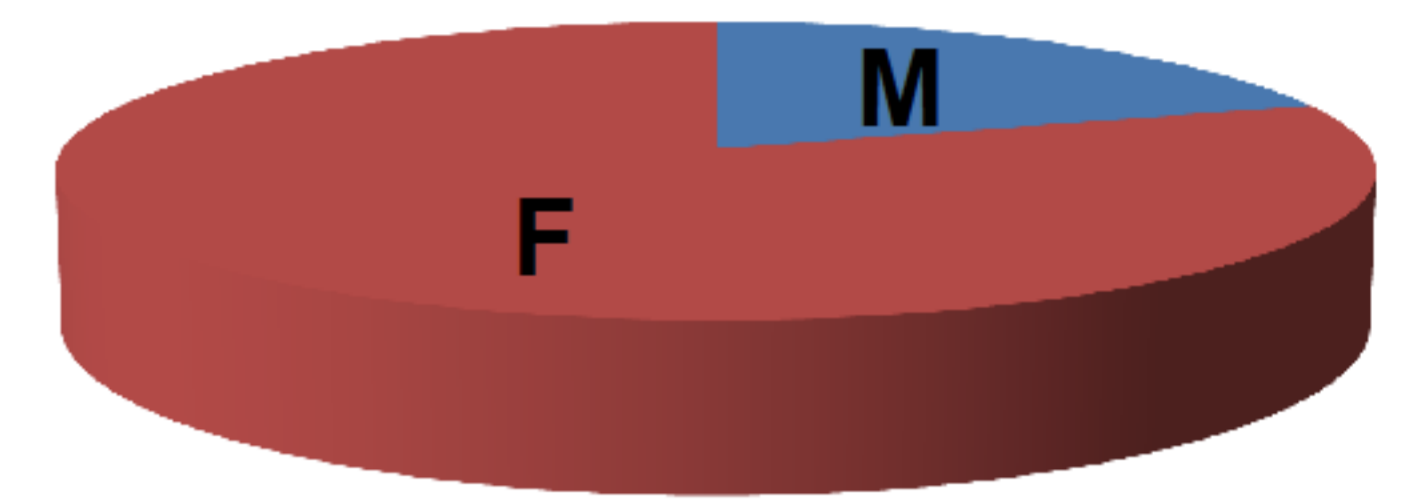
Significant number of elderly patients have decreased GFR which is partially attributed to physiological changes in the kidney due to ageing process, but it can also be a sign of kidney disease. Proteinuria occurs due to glomerular endothel damage. It is one of the markers of kidney disfunction. It is also negative prognostic factor for kidney failure progression, ESRD development and poor cardiovascular outcome.

AIM

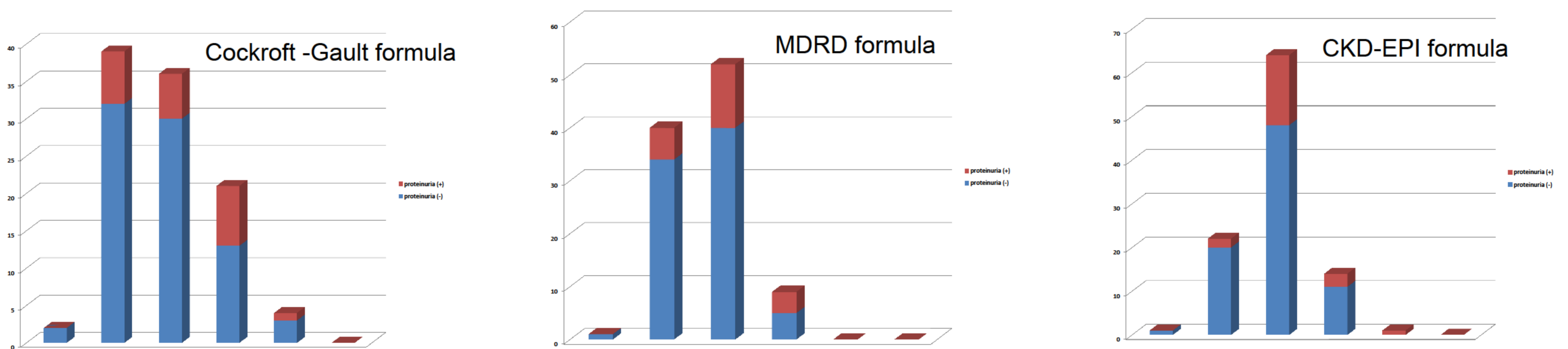
The aim of this study was to examine the role of proteinuria in predicting decreased GFR in elderly patients.

PATIENTS AND METHODS

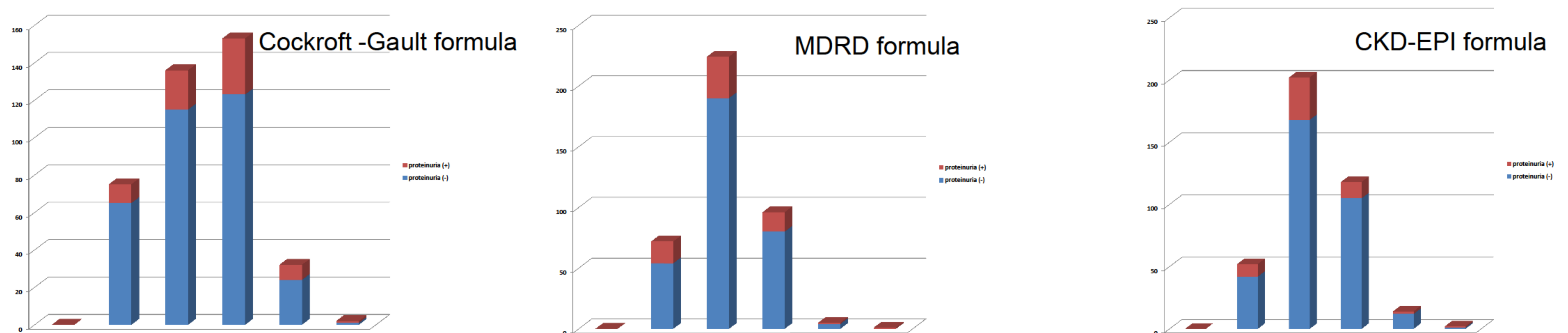
500 patients were included in this epidemiological study, all of them aged ≥ 65 years. Blood samples for serum creatinine were taken and GFR was calculated using three formulas: Cockcroft-Gault, MDRD and CKD-EPI. One time urine samples were taken for proteinuria detection, and proteinuria >0.15 g/L was defined as positive.



Distribution by gender



Relationship of proteinuria and GFR using Cockcroft Gault, MDRD and CKD-EPI formula in male patients



Relationship of proteinuria and GFR using Cockcroft Gault, MDRD and CKD-EPI formula in female patients

RESULTS

Proteinuria was found in 18% (92) patients, with no difference in prevalence among males and females. Average calculated GFR was lower in patients with proteinuria using all three formulas, and statistical significance was found only for Cockcroft-Gault formula in males ($P=0.034$). Among patients with $GFR < 60$ ml/min/1.73 m² proteinuria was positive in 19.5% using Cockcroft-Gault formula, 20.2% using MDRD formula and 18.8% using CKD-EPI formula. Among patients with $GFR < 45$ ml/min/1.73 m² proteinuria was positive in 22.6% using Cockcroft-Gault formula, 19.8% using MDRD formula and 18.8% using CKD-EPI formula. Significant negative connection of proteinuria and GFR was found in males, but not in females, if GFR was estimated using all three formulas. Proteinuria was negative predictor of GFR estimated using Cockcroft-Gault formula (coefficient=-26.8; 95% CI -45.0-8.5; $P=0.004$). Proteinuria was also significant negative predictor of decreased GFR using MDRD formula (coefficient=-15.7; 95% CI -29.0- -2.2; $P=0.022$) and CKD-EPI formula (coefficient=-16.0; 95% CI -27.9- -4.2; $P=0.008$).

Characteristics of the patients

Total No of patients	M/F	Average age	Age 65-74 (% patients)	Age 75-79 (% patients)	Age ≥ 80 (% patients)
500	102/398	78.2 \pm 7	32.4	23.6	44

	Cockcroft-Gault formula	MDRD formula	CKD-EPI formula
% of patients with $GFR < 60$ ml/min/1.73 m ²	76.4	77.2	84.4
% of patients with $GFR < 45$ ml/min/1.73 m ²	42.4	22.2	31.4

CONCLUSION

Proteinuria was significant negative predictor for decreased GFR in male, but not in female elderly patients.