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Introduction: Retinol binding protein 4 (RBP4), an adipokine, have recently emerged as a potential new risk factor for cardiovascular diseases development, including hypertension (HT), atherosclerosis and coronary artery disease (CAD).

The aim of the study was to assess plasma RBP4 concentration in elderly subjects in relations to nutritional status and kidney function in the population of PolSenior Study.

Material and Methods: RBP4, glucose, insulin, albumin, lipid profile, C-reactive protein (CRP) and creatinine concentrations were assessed in 2614 the PolSenior Study participants (1235 women and 1379 men). The study group was divided on the basis of BMI and HOMA-IR values, and the occurrence of diabetes.

Results: Plasma RBP4 concentration was similar in normal weight, overweight and obese subgroups, both in women, and men (Fig. 1). Similar values were found in subjects with HOMA-IR <2.5; ≥2.5 and diabetes, while those with decreased eGFR (<60 ml/min/1.73m²) were characterized by increased RBP4 levels (Figure 2). Plasma RBP4 level variability were explained by: age, waist circumference or BMI and eGFR, but not HOMA-IR and CRP. The standardized coefficients β (slopes) for BMI and waist circumference were similar (Table 1).

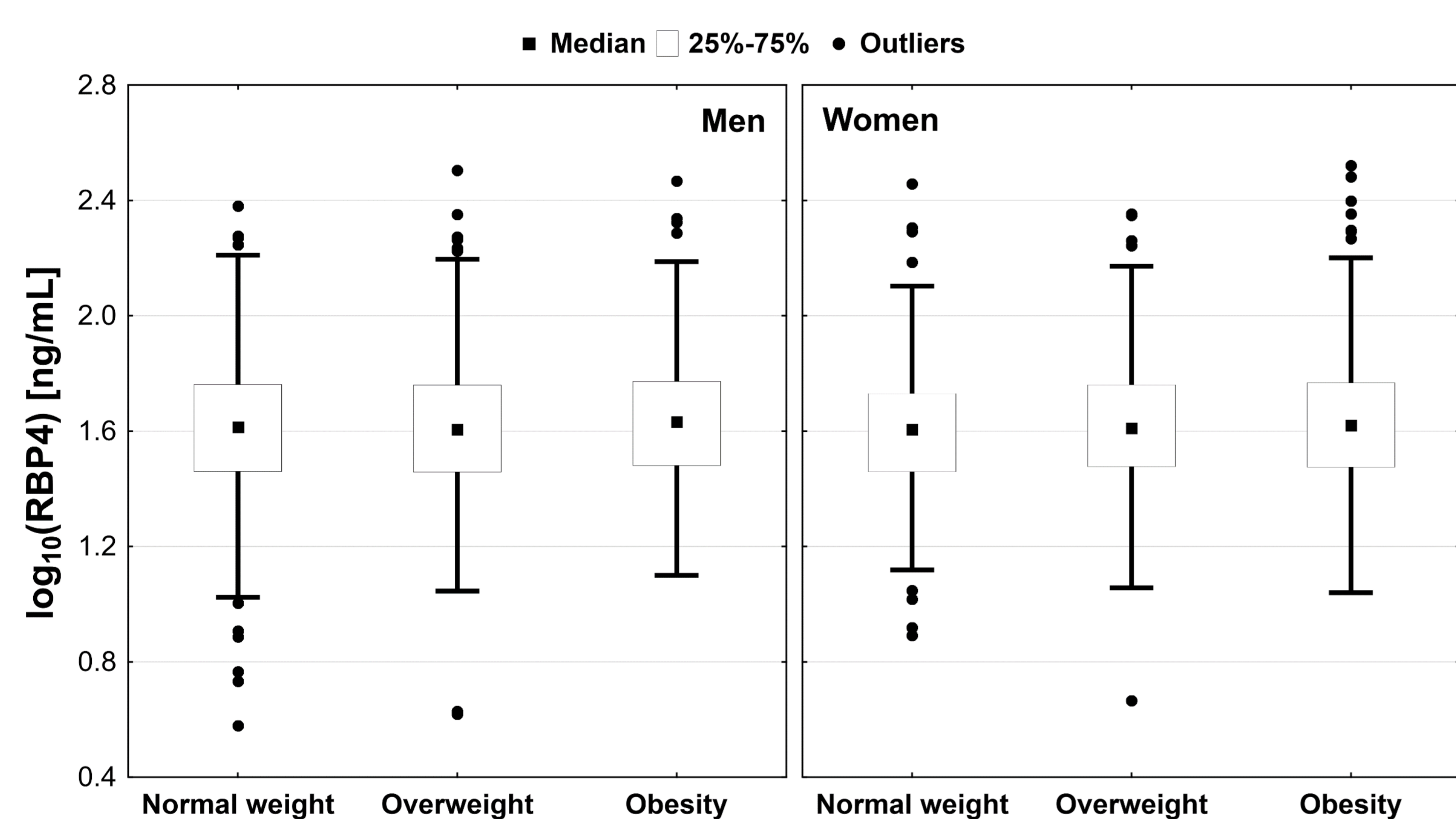
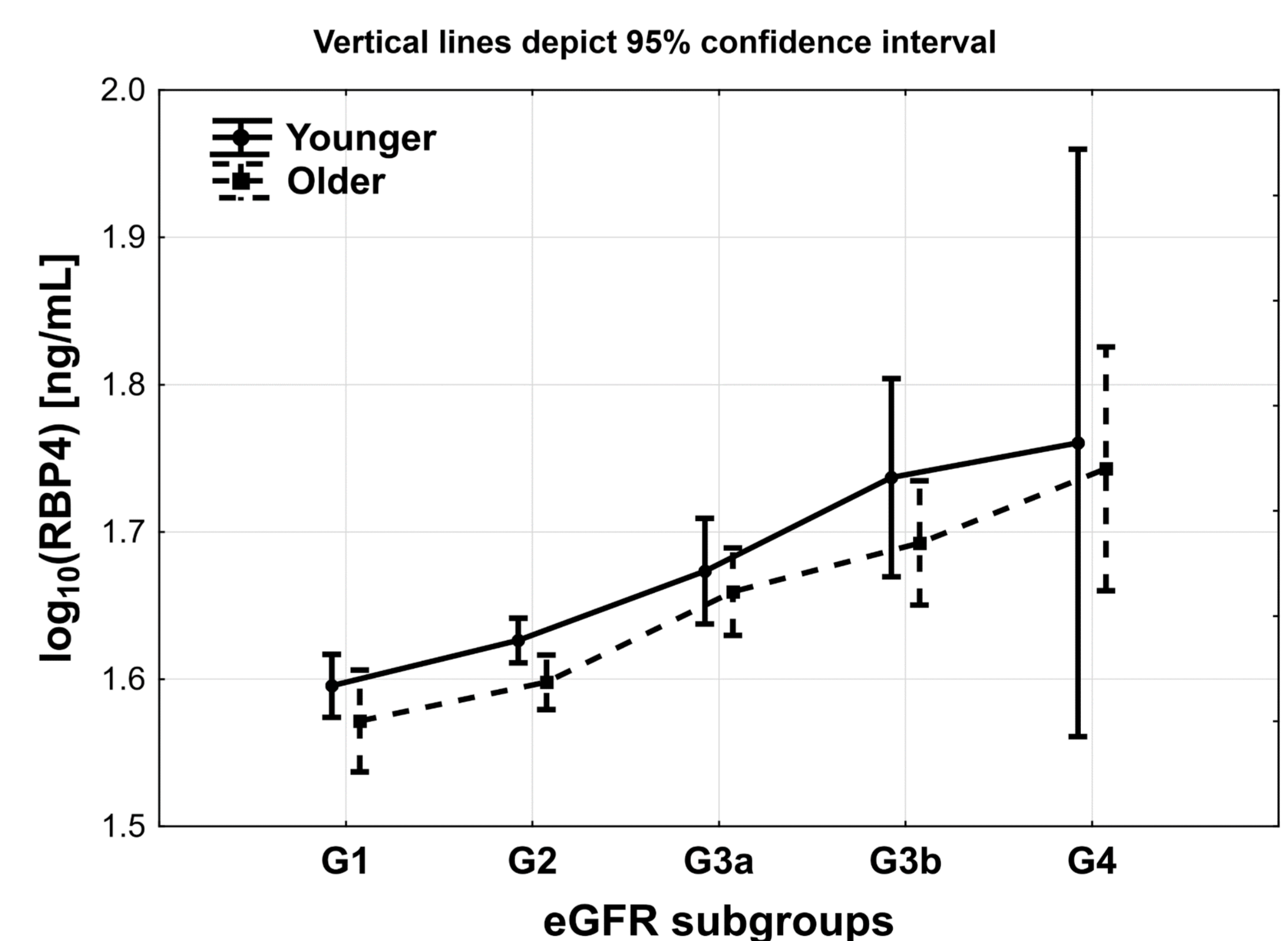


Figure 1: Plasma retinol binding protein 4 (RBP4) concentrations in relation to nutritional status.

Table 1: Results from the least angle regression of $\log_{10}(\text{RBP4}) \times 10^3$.

Model 1 with waist circumference				Model 2 with BMI			
Step	C _p	Action	Coefficient in final model	Step	C _p	Action	Coefficient in final model
1	104.44	Intercept	-	1	100.16	Intercept	-
2	54.34	+ eGFR	-2.286	2	47.96	+ eGFR	-2.304
3	15.24	+ Age	-2.781	3	8.65	+ Age	-2.653
4	8.71	+ Waist circumference	0.348	4	8.88	+ Female	-12.655
5	3.45	+ Female	-9.364	5	3.44	+ BMI	0.659
6	5.43	+ hsCRP	-	6	5.07	+ hsCRP	-
7	7.00	+ HOMA-IR	-	7	7.00	+ HOMA-IR	-



CKD subgroups	Age < 80		Age ≥ 80	
	N	Me (Q ₁ – Q ₃)	N	Me (Q ₁ – Q ₃)
G1	436	38.5 (28.4 – 51.9)	167	34.0 (24.9 – 53.0)
G2	861	41.1 (30.3 – 57.9)	581	39.1 (27.4 – 53.8)
G3a	154	45.9 (34.5 – 61.7)	225	45.7 (30.7 – 64.3)
G3b	44	55.6 (39.1 – 74.3)	112	51.2 (34.6 – 66.1)
G4	5	74.3 (35.5 – 97.9)	29	57.2 (40.4 – 74.4)

Figure 2: Plasma retinol binding protein 4 (RBP4) concentrations in relation to glomerular filtration rate in younger (65-80 years) and older (≥ 80 years) subgroups.

Conclusion: The results revealed that in older subjects, circulating RBP4 levels are mostly affected by kidney function and modestly by age, gender and nutritional status, but not insulin resistance.