

Association of Plasma Fetuin-A Levels and Peripheral Vascular Disease in Type 2 Diabetic Patients

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OBJECTIVES

Diabetes is a risk factor for both PAD and PAD-associated mortality. In patients with peripheral arterial disease, diabetic patients have worse arterial disease and a poorer outcome than nondiabetic patients.¹

Fetuin is a blood protein made in the liver more abundant in fetal blood. Fetuin A is regarded as an inhibitor of systemic calcification². So we aimed at assessing the relationship between plasma fetuin-A levels and peripheral vascular disease in type 2 diabetes mellitus.

METHODS

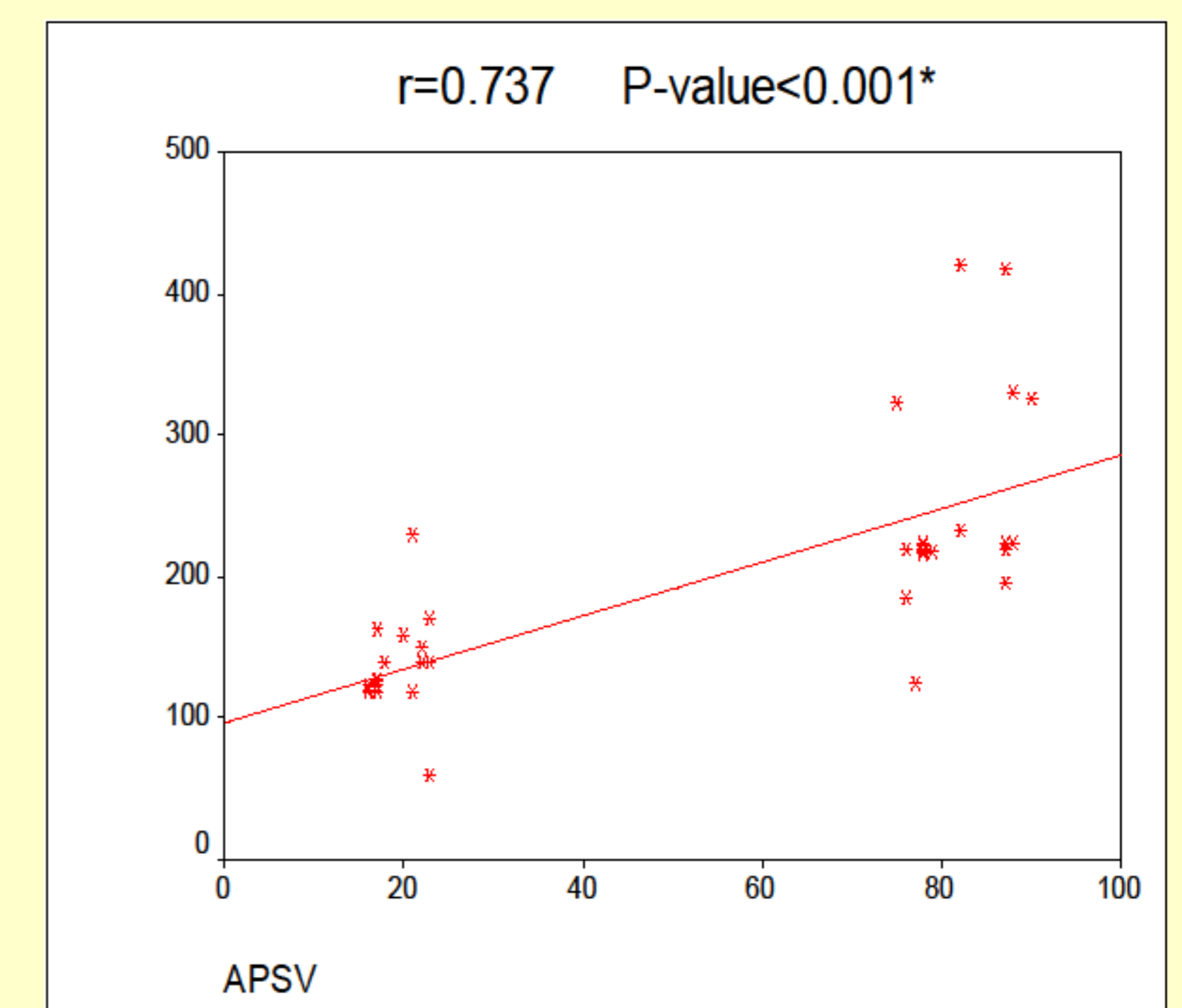
This cross sectional study was conducted on 50 subjects aged from 50 to 65 years old divided into **Group 1**: 20 T2DM patients with PVD. **Group 2**: 20 T2DM patients without PVD. **Group 3**: 10 healthy subjects as control group. They were subjected to full clinical history, thorough clinical examination, laboratory investigations including fasting and 2-hour postprandial blood glucose level, HbA1c, measurement of plasma fetuin-A level using ELISA and arterial doppler ultrasound on peripheral vasculature for assessment of Ankle peak systolic velocity (APSV).

Correlation between Fet-A and other parameters in all Groups

All cases	Fet-A	
	r	P-value
FBG	-0.001	0.994
PBG	-0.067	0.685
HbA1c	-0.054	0.743
APSV	0.737	< 0.001**

Correlation between APSV and other parameters in all groups

All cases	APSV	
	r	P-value
FBG	0.114	0.482
PBG	0.141	0.393
HbA1c	0.007	0.968
Fet-A	0.737	< 0.001**



RESULTS

On comparing the diabetics with PVD (Group 1) with diabetics without PVD (Group 2): There was a highly statistical significant decrease in plasma Fetuin-A level ($P < 0.001$) as well as in APSV ($P < 0.001$) in group (1) but there was no statistical significant difference as regard weight, height, BMI, FBG ($P = 0.724$), PBG ($P = 0.781$), and HbA1c ($P = 1.000$).

On comparing the three studied groups: There was a highly significant increase in weight and BMI, FBG and PBG in group (1) (diabetics with PVD) and group (2) (diabetics without PVD) when compared with group (3) (control) ($P < 0.001$) **While** there was a highly significant decrease in plasma fetuin-A level (133.690 ± 32.083 ng/ml) and APSV (19.000 ± 2.714 cm/s) in diabetics with PVD when compared with diabetics without PVD (248.395 ± 75.296 ng/ml) (81.450 ± 5.031 cm/s) and also when compared with control (310.760 ± 106.876 ng/ml) (117.600 ± 17.264 cm/s) respectively ($P < 0.001$) While there was no statistical significant difference between group (2) (diabetics without PVD) and group (3) (control) as regard fetuin-A level ($P = 0.065$).

CONCLUSIONS

These results postulate an association between lower plasma fetuin-A level and peripheral vascular disease in type 2 diabetic patients.

References

1-Jude EB, Oyibo SO, Chalmers N, et al: Peripheral arterial disease in diabetic and nondiabetic patients: a comparison of severity and outcome. *Diabetes Care*; 24:1433-1437., 2001

2-Schafer C.; Heiss A, Schwars A, et al. "The serum protein α_2 -Heremans-Schmid glycoprotein/ fetuin-A is a systemically acting inhibitor of ectopic calcification". *The Journal of clinical investigation* 112 (3): 357-66., 2003.

