RELATIONSHIP BETWEEN SOLUBLE F11 RECEPTOR, TOTAL NITRIC OXIDE LEVELS, AND VASCULAR FUNCTION IN AFRICAN AMERICANS WITH TYPE II DIABETES

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Background: Human F11 receptor (F11R) is an important cell adhesion molecule implicated in inflammatory thrombosis. F11R is associated with the presence and severity of cardiovascular disease. Endothelial dysfunction in diabetes has been attributed to lack of bioavailability of nitric oxide (NO), another key player of platelet adhesion and aggregation. Our objective was to examine the relationship between F11R and NO and their impact on vascular function in African Americans with diabetes.

Methods: 146 patients with diabetes were recruited from medical clinics over 6-month period. Plasma F11R and total NO were measured by ELISA. Microvascular function was assessed by vascular reactivity index (VRI), which assess changes in digital temperature before and after release of arterial cuff occlusion. Large artery stiffness was assessed by carotid-femoral pulse wave velocity (PWV) using applanation tonometry. Patient population was categorized into two groups: good control (HbA1c≤7; N=85) and poor control (HbA1c>7.0; N=61).

Results: Age 60±8 years, female 64%, hypertension 82%, dyslipidemia 83%, diabetes duration 10.2±7.6 years, HbA1C= 8.1±2.2%. In the total population, F11R was negatively correlated with NO (r=- 0.341, p=0.0001) and VRI (r=- 0.191, P=0.022), but not PWV (r=0.082, p=0.335). In poor control group, F11R was significantly correlated with NO (r=- 0.397, p=0.0001) but not VRI (r=- 0.193, p=0.079). Univariate analysis showed plasma F11R predicted NO availability (β= - 0.273, p=0.001) but not VRI (r=- 0.234, p=0.475). Multiple linear regression analysis showed that F11R was independently associated with total NO levels (β=- 0.339, p=0.009) after adjustment for age, gender, weight, hypertension, stroke, dyslipidemia, smoking, HbA1c, duration of diabetes, total cholesterol, LDLc, HDLc, triglycerides, medications.

Conclusion: Our findings demonstrated significant inverse association between F11R and NO levels but neither were significantly associated with microvascular dysfunction or arterial stiffness in this cohort, suggesting F11R and NO may not be reliable markers of early vascular changes in diabetes. Larger prospective studies are needed to clarify these findings.