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Factors associated with reduction of albumin excretion in type 2 diabetic hypertensive patients: the AMANDHA Trial

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Background and Aim: in the AMANDHA trial we found that the addition of Manidipine on top of a RASB was much more effective than the addition of Amlodipine in type 2 diabetic patients with uncontrolled hypertension and microalbuminuria and preserved renal function, in spite of similar blood pressure reduction. We sought to analyze the relationship of the reduction in albuminuria with the changes in other variables.

Methods: A post-hoc multivariate linear regression analysis was performed with the percentual reduction of albuminuria as the independent variable, and the rest of the variables (assigned treatment, age, gender, fasting glucose, HbA1c, creatinine, total cholesterol, HDL-cholesterol, triglycerides, reduction of metanephrine and normetanephrine excretion, systolic, diastolic, mean and pulse pressure, heart rate) as dependent.

Results: The AMANDHA trial involved 91 patients (59% women, mean age 56 yr.) with a 6 month follow-up. The percentual reduction of albuminuria was 54% with Manidipine and 15% with Amlodipine ($p < 0.01$). The multivariate analysis yielded a correlation value $R = 0.612$ ($R^2 = 0.375$ corrected $R^2 = 0.344$; typical estimate error = 14.47%).

Variable

HbA1c (%): Coefficient -6.33, P-value 0.042

Reduction Metanephrine excretion ($\mu\text{g}/\text{gr Cr}$): Coefficient 0.06, P-value 0.022

Reduction Normetanephrine excretion ($\mu\text{g}/\text{gr Cr}$): Coefficient 0.09 P-value 0.014

Mean blood pressure (mmHg): Coefficient -1.24, P-value 0.009

Treatment (0 Amlodipine, 1 Manidipine): Coefficient 32.14, P-value 0.004

The rest of the studied variables showed no significant relationship with the reduction of albuminuria. Systolic, diastolic and pulse pressure showed relationship in bivariate analysis but with the inclusion on mean blood pressure they were no longer significant.

Conclusions: in the AMANDHA trial the most important factor in the reduction of albuminuria was the assigned treatment, but changes in blood pressure, sympathetic tone (as estimated by metanephrine and normetanephrine excretion) and glycemic control were also independently associated with the change in albumin excretion.