ASSOCIATION OF HIGH BLOOD PRESSURE WITH RENAL INSUFFICIENCY: ROLE OF ALBUMINURIA, FROM THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY (NHANES) 1999-2006

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Background: The relationship between hypertension and kidney disease is complicated. Clinical trials found intense blood pressure control were not associated with alterations in glomerular filtration rate (GFR) in all patients but did slow the rate of GFR decline among those with higher baseline proteinuria. However, the underlying mechanism is unclear. Methods: We tested the hypothesis that the association between high blood pressure and renal function is modified by albuminuria status by conducting cross-sectional analyses among 9,324 adult participants without known hypertension, kidney diseases, diabetes or cardiovascular disease, participating in the National Health and Nutrition Examination Survey (NHANES) 1999-2006. Results: 1227 out of 9324 were found to have high blood pressure and 4494 reduced renal function. Overall, no association was found between high blood pressure and renal function insufficiency in all participants analyzed. However, among participants with albuminuria, the prevalence of moderate-severe renal insufficiency significantly increased progressively from normal to prehypertensive and undiagnosed hypertensive subjects (2.46%, 7.04%, 10.81%, respectively, P for trend, 0.006); whereas the prevalence of undiagnosed hypertension was significantly higher among subjects with moderate-severe renal insufficiency than those with mild renal insufficiency (35.54% Vs 19.09%, P value <0.05), supporting an association between hypertension and renal function damage. In contrast, no association between hypertension and renal insufficiency was observed among those without albuminuria. Conclusions: The association between high blood pressure and reduced renal function could be dependent upon the albuminuria status. This finding may provide a possible explanation for results observed in clinical trials of intensive blood pressure control.