Incident ESRD and treatment-resistant hypertension: the reasons for geographic and racial differences in stroke (REGARDS) study.

Abstract

BACKGROUND: Studies suggest that treatment-resistant hypertension is common and increasing in prevalence among US adults. Although hypertension is a risk factor for end-stage renal disease (ESRD), few data are available for the association between treatment-resistant hypertension and ESRD risk.

STUDY DESIGN: Prospective cohort study.

SETTING & PARTICIPANTS: We analyzed data from 9,974 REGARDS (Reasons for Geographic and Racial Differences in Stroke) Study participants treated for hypertension without ESRD at baseline.

PREICTOR: Treatment-resistant hypertension was defined as uncontrolled blood pressure (BP) with concurrent use of 3 antihypertensive medication classes including a diuretic or use of 4 or more antihypertensive medication classes including a diuretic regardless of BP.

OUTCOME: Incident ESRD was identified by linkage of REGARDS Study participants with the US Renal Data System.

MEASUREMENTS: During a baseline in-home study visit, BP was measured twice and classes of antihypertensive medication being taken were determined by pill bottle inspection.
RESULTS: During a median follow-up of 6.4 years, there were 152 incident cases of ESRD (110 ESRD cases among 2,147 with treatment-resistant hypertension and 42 ESRD cases among 7,827 without treatment-resistant hypertension). The incidence of ESRD per 1,000 person-years for hypertensive participants with and without treatment-resistant hypertension was 8.86 (95% CI, 7.35-10.68) and 0.88 (95% CI, 0.65-1.19), respectively. After multivariable adjustment, the HR for ESRD comparing hypertensive participants with versus without treatment-resistant hypertension was 6.32 (95% CI, 4.30-9.30). Of participants who developed incident ESRD during follow-up, 72% had treatment-resistant hypertension at baseline.

LIMITATIONS: BP, estimated glomerular filtration rate, and albuminuria assessed at a single time.

CONCLUSIONS: Individuals with treatment-resistant hypertension are at increased risk for ESRD. Appropriate clinical management strategies are needed to treat treatment-resistant hypertension in order to preserve kidney function in this high-risk group.

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