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Increased Rate of Subarachnoid Hemorrhage in Polycystic Kidney Disease Despite Screening

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Introduction

The rate of subarachnoid hemorrhage (SAH) in patients with polycystic kidney disease (PKD) is poorly understood. National professional societies provide conflicting guidelines on aneurysm screening, with the stroke community advocating universal screening, while nephrologists argue for screening only in select patients. This study evaluated screening, elective treatment, and the rate of SAH in patients with known PKD.

Methods

We examined longitudinally linked medical claims data from a large private insurer, identifying screening, elective treatment, aneurysmal subarachnoid hemorrhage (aSAH) and secured aneurysmal SAH (saSAH) in 2004-2014 amongst patients with previously diagnosed PKD.

Results

We identified 20,704 patients with a diagnosis of PKD. Among patients classified with an initial PKD diagnosis, 51 of 446 (15.9%) underwent angiographic screening (primarily magnetic resonance angiography) within 2 years. Forty aneurysms were treated electively in 48,868 years at risk in PKD patients (82/100K patient years, 95% CI 60-112) compared to 24 elective treatments in 349,861 years at risk in age- and sex-matched controls (7/100K patient years, 95% CI 5-10, P<0.0001). Eleven admissions for aSAH were identified in PKD patients (23/100K patient years, 95% CI 13-41) and 22 admissions for aSAH in controls (6/100K patient years, 95% CI 4-10), giving an incidence rate ratio (IRR) of 3.6 (95% CI 1.7-7.4, P<0.0001) and a comorbidity-adjusted IRR of 3.1 (95% CI 1.4-6.9). The incidence of saSAH was proportionally even higher in PKD patients than controls, 16 vs. 2/100K patient years, IRR 9.5 (95% CI 3.3-27.5, P<0.0001). The absolute rate of aSAH in PKD patients however remains low (cumulative 10-year SAH rate of 0.23%).

Conclusions

Screening in PKD is performed only selectively, though resulting rates of elective treatment were over 10x those of age- and sex-matched controls. Despite screening and treatment, the rate of SAH remains significantly elevated over that of controls.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the differing recommendations for aneurysm screening in PKD among nephrologists and the stroke community, 2) Describe the prevalence of aneurysm screening and elective treatment in PKD, and 3) Discuss pros and cons of universal vs. selective aneurysm screening in PKD.

References

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