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SENTIENT NeuroCare Services

Transcranial Doppler and Diagnostic Services

Transcranial Doppler (TCD) Ultrasound Screening Offers the Promise of Early Disease Identification

In this population-based study in stroke-free subjects aged 61 years and over, strong, significant, and independent association between middle cerebral artery cerebral blood flow velocity measured with TCD and the risk of stroke, particularly ischemic stroke, was demonstrated. No associations were found between vasomotor reactivity and the risk of stroke.

Transcranial Doppler Hemodynamic Parameters and Risk of Stroke. The Rotterdam Study. Bos, et al. Stroke. 2007; 38: 2453-2458.

OBJECTIVE: The authors explored association between TCD hemodynamic parameters and the risk of stroke in the general population.

METHODS: At baseline, the authors assessed mean flow velocity, peak systolic flow velocity, end diastolic flow velocity, and vasomotor reactivity with TCD in 2022 Rotterdam Study participants aged 61 years and over in both middle cerebral arteries. All for occurrence of stroke (average follow-up time 5.1 years). The authors calculated hazard ratios for the association between hemodynamic parameters and risk of stroke using Cox proportional hazards models with adjustment for age, sex, systolic blood pressure, antihypertensive drug use, diabetes mellitus, ever smoking, current smoking, carotid intima media thickness, and carotid distensibility.

RESULTS: Risk of stroke (n=122) and ischemic stroke (n=89) increased with increasing middle cerebral artery flow velocity; when comparing the tertile with hghest velocity to the tertile with lowest velocity, the hazard ratio was 1.74 (95% CI: 1.09 to 2.77) for the association between mean flow velocity and stroke, 1.63 (95% CI: 1.03 to 2.58) for end diastolic flow velocity and stroke, and 1.33 (95% CI: 0.86 to 2.08) for peak systolic flow velocity and stroke. These estimates increased 10% to 26% when only ischemic strokes were included. The side of highest flow velocity was not associated with the side of stroke. We found no associations between vasomotor reactivity and risk of stroke.

CONCLUSIONS: Risk of stroke increased strongly with increasing middle cerebral artery flow velocity as measured with TCD in the general population.

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