



# APPROPRIATE USE OF CERVICAL DUPLEX ULTRASONOGRAPHY (CDU) AND TRANSCRANIAL DOPPLER (TCD)

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## ABSTRACT

**Background:** The Cervical duplex ultrasonography (CDU) and transcranial Doppler (TCD) is traditionally used in suspected cerebrovascular pathology.

**Objective:** To analyze and summarize the available evidence on the appropriateness of CDU/TCD for screening of cerebrovascular system in patients with different clinical conditions.

**Methods:** A search in Epistemonikos was carried out (up to December 31, 2023) with the following strategy: (Ultrasound\* OR Ultrasonography OR Neurosonolog\* OR Echoencephalography OR sonograph\*) AND (doppler OR duplex) AND (carotid\* OR encephal\* OR transcranial OR intracranial OR extracranial OR vertebral) in title or abstract fields, restricted to systematic reviews. References of the identified reviews were analyzed. Clinical practice guidelines, consensus statements or other documents and position papers from health organizations and institutions were also identified.

**Key points:** Following a review of the majority of the available indications, no scientific evidence has been identified to support the use of the CDU/TCD. In some cases, the test may be indicated and restricted to certain patient groups, clinical conditions or for a specific period of time. In general, an adequate anamnesis and examination is essential to establish the diagnostic suspicion and usefulness of CDU/TCD. In particular, with regard to the use of CDU/TCD for surveillance in asymptomatic patients, the diagnostic test will be useful to the extent that it can modify the therapeutic approach and ultimately modify clinical outcomes in patients.

**Recommendations:** TSA for screening of cerebrovascular conditions is generally NOT recommended in cases of tinnitus; syncope or loss of consciousness; dizziness, instability or isolated vertigo; leukoaraiosis, white matter disturbances, cognitive impairment or dementia; headache or migraine; and global transient amnesia. It may be justified in some cases of non-specific visual field defect, prior to major cardiothoracic surgery, after endarterectomy or carotid angioplasty with stenting, and in high-risk patients when the screening result is expected to guide the therapeutic decision. Finally, it is recommended in subclavian steal syndrome if a difference >20 mmHg and neurological symptoms are present.