

# PROSPECTIVE VALIDATION OF NEUROLOGICAL SIGNS ASSESSED BY EMS FOR PREHOSPITAL TRIAGE OF SEVERE STROKE



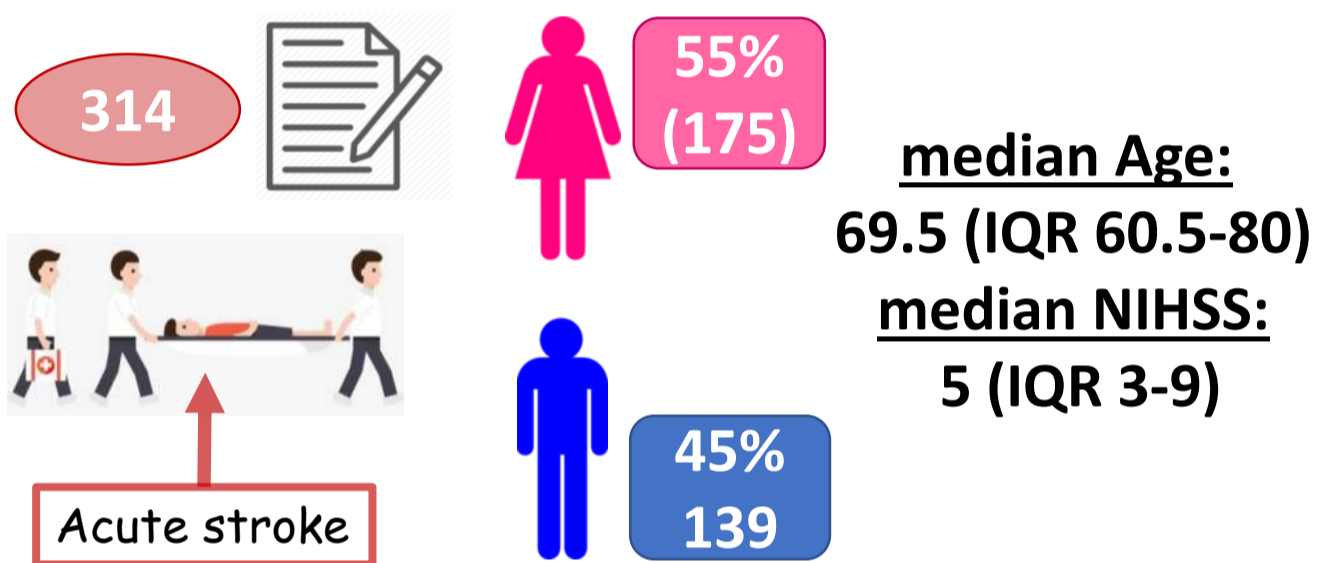
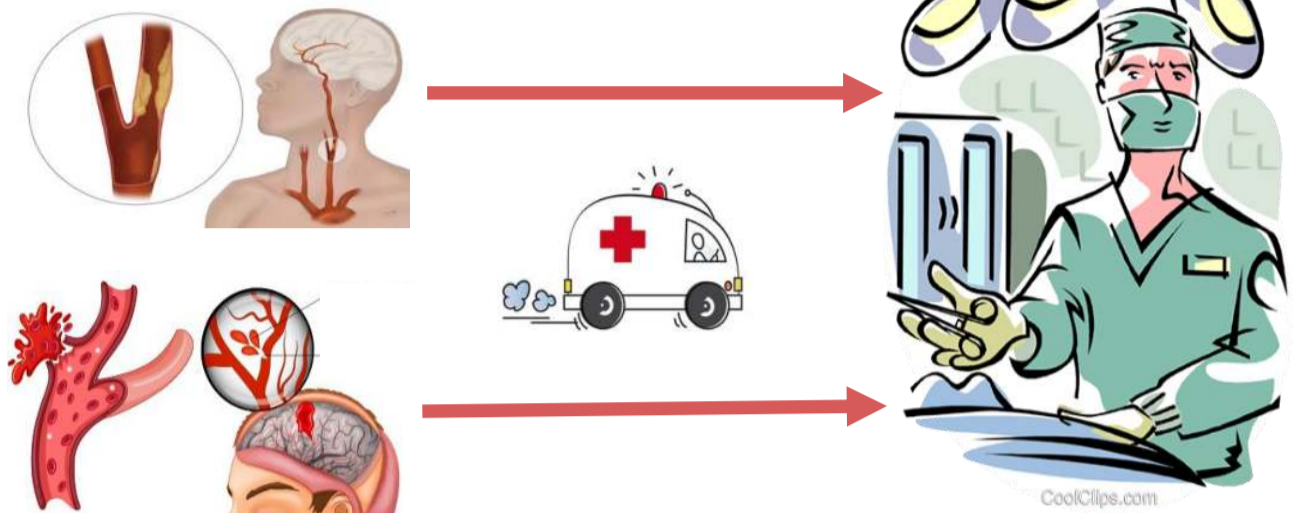
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## Background and Aims:

Rapid clinical identification of stroke patients with proximal arterial occlusion or intracranial hemorrhage (ICH) is crucial for immediate referral to comprehensive stroke centers (CSC) with facilities for mechanical thrombectomy and neurosurgery. We aimed to examine the diagnostic accuracy of prehospital identification of such patients through recognition of warning neurological signs by emergency medical services (EMS) staff.

## Goal:

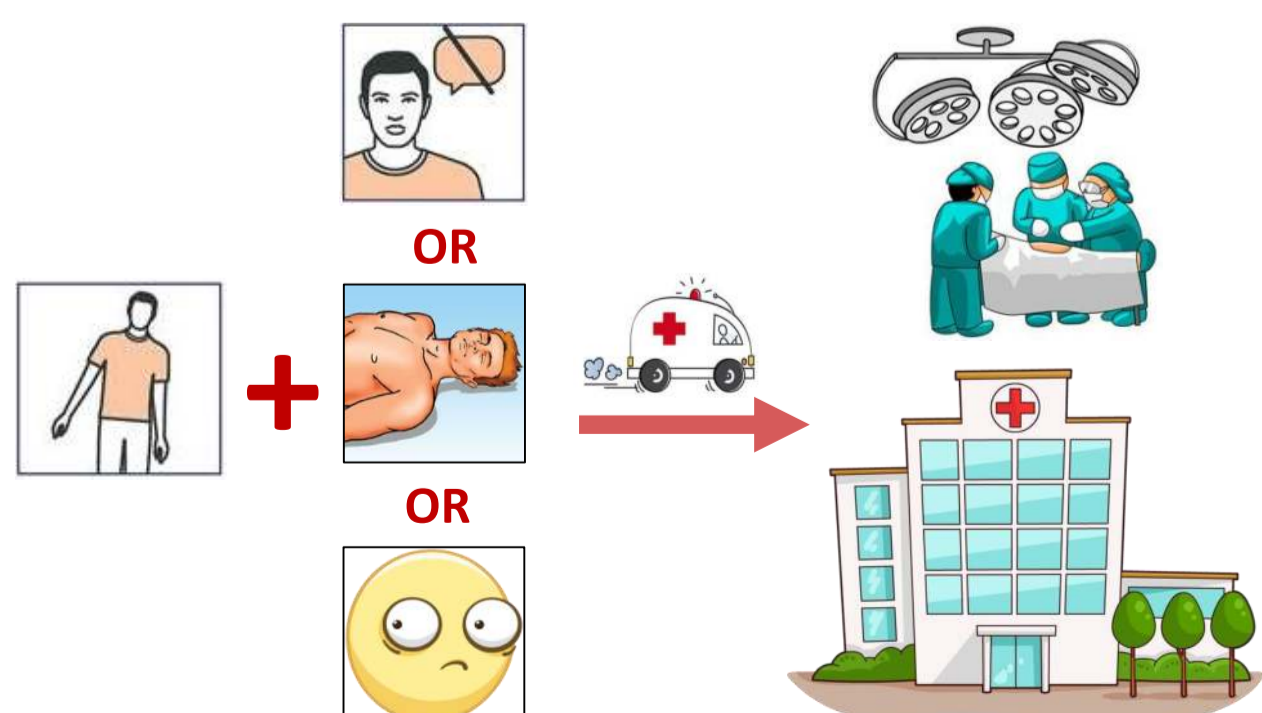
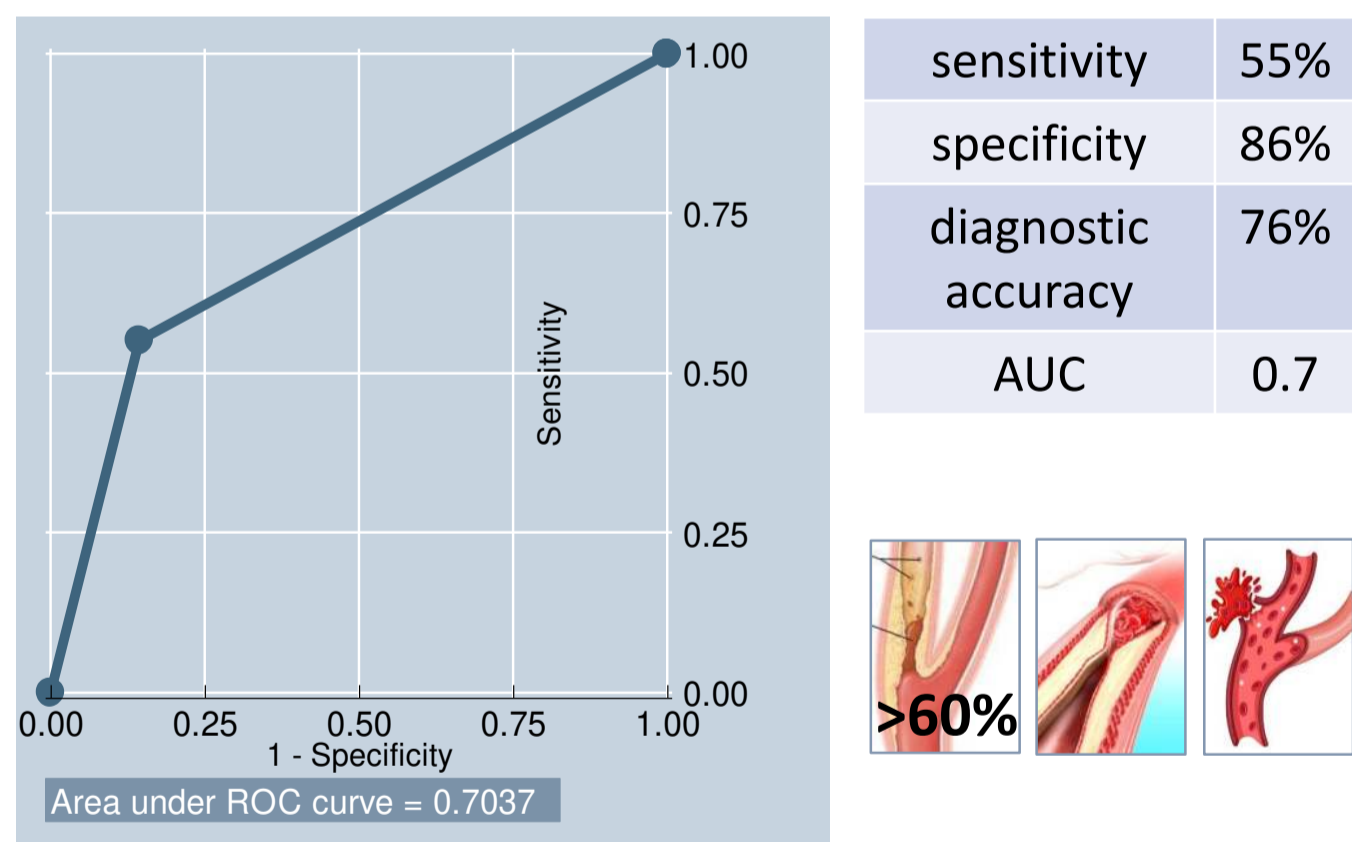


## Methods:

We prospectively collected data from consecutive stroke cases admitted via EMS in September 2017 in St. Petersburg, Russia. Neurological status was recorded in the prespecified form. Patients with **proximal arterial occlusion, critical ( $\geq 60\%$  on CTA or DSA) arterial stenosis, and ICH** were considered as candidates for CSC.

## Results:

314 stroke victims were identified, 139 (45%) males, median age 69.5 (interquartile range (IQR) 60.5-80), median admission NIHSS score 5 (IQR 3-9), of those 18 (7%) had ICH, 245 (93%) had ischemic stroke, of which 82 (27%) were caused by proximal arterial occlusion or critical arterial stenosis. **Combination of hemiparesis (inability to hold arm and leg against gravity) with decreased level of consciousness, eye deviation, or aphasia was suggestive of need of transportation to CSC with sensitivity 55%, specificity 86%, diagnostic accuracy 76% (AUC 0.7).** Diagnostic accuracy of the combination exceeded that of each isolated sign.



## Conclusions:

In a prospective study, the **combination of hemiparesis with any of 3 stroke signs (decreased level of consciousness, eye deviation, or aphasia)** was easily recognized by EMS staff and **associated with a need of transportation to CSC**, thus representing a promising clinical tool for early triage of stroke victims.