PRECISION SCALE OF PREHOSPITAL DIAGNOSIS OF CEREBRAL INFARCTION AT THE PREHOSPITAL STAGE

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THESIS

Relevance: Stroke is a life-threatening condition in which brain tissue is damaged. This condition can be caused by a blood clot blocking blood supply to a part of the brain, or a hemorrhage in brain tissue. If the symptoms disappear within 24 hours and there are no long-term effects, this condition is called TIA (micro stroke). Effective treatment depends on early detection of stroke, even a short delay can lead to brain damage and death. The emergency medical Service is the first place to contact when symptoms indicating a stroke appear. Healthcare professionals can more accurately identify stroke patients if they use checklists (checklists) called stroke recognition scales. This scale includes symptoms and other available information. A positive result on this scale indicates an increased risk of stroke and the need for urgent examination by a specialist. Differentiation between stroke and TIA is performed in the hospital by a neurologist or stroke specialist.

Our goal is to analyze scientific data on how accurately the stroke recognition scale allows paramedics and other doctors at the prehospital stage, at the first contact with a person who is suspected of having a stroke, to determine the presence of a stroke or TIA. The data is current as of 2024. Studies evaluating the accuracy of community-based stroke recognition scales used in adults with suspected stroke were included. 23 studies were included in which the following scales were evaluated: Cincinnati Prehospital Stroke Scale (CPSS, 13 studies), stroke recognition scale in the emergency department (ROSIER, 8 studies), face-hand-speech scale (FAS). Hand-Speech Scale (FAST, 6 studies), Los Angeles Prehospital Stroke Scale (LAPSS, 6 studies), Melbourne Ambulance Stroke Scale (MASS, 4 studies), Ontario Prehospital Stroke Scale (MASS, 4 studies); Melbourne Ambulance Stroke Scale (MASS, 4 studies); Ontario Ambulance Stroke Scale (MASS, 4 studies); 4 studies), Ontario Prehospital Stroke Scale (OPSST; 2 studies), Prehospital Stroke Medical Scale (MedPACS; 1 study), Assessment of Prehospital stroke by an ambulance team (PreHAST; 1 study). (PreHAST; two studies); nine studies compared two or more scales in the same people. The results of five studies were combined to evaluate the accuracy of the ROSIER scale in the emergency department, and the results of five studies were combined to evaluate the accuracy of the LAPSS scale when used by emergency physicians.

Many studies were of low or unclear quality, and the reliability of their results cannot be established. The main conclusions on assessing the accuracy of stroke

assessment scales at the prehospital stage: the studies differed significantly in the number of subjects and other characteristics. As a result, the results differed even among studies that evaluated the effectiveness of the same scale. If we combine five studies that evaluated the ROSIER scale in the emergency department, the average sensitivity was 88% (80 out of 110 stroke/TIA patients would be positive on the ROSIER scale). The specificity (how many patients without stroke/TIA would be negative on the ROSIER scale) could not be assessed.

The results were also combined for the LAPSS scale, but the included studies were of poor quality and the results may be unreliable. As for the other scales, either the number of studies was too small, or the results were too different to be combined statistically. A small number of studies compared two or more scales when they were applied to the same participants. Such studies are more likely to produce reliable results because the scales are used in the same context. These studies reported that the accuracy of the ROSIER and FAST scales in emergency departments was the same, but the ROSIER scale was rated higher in more studies. When used by emergency department staff, the CPSS scale identified more stroke patients/TIA in all studies, but also identified more patients without stroke/TIA.

Conclusions.

The available evidence suggests that the CPSS scale should be used by emergency physicians upon admission. Further research is needed on the proportion of incorrect responses and whether alternative scales with similar sensitivity but higher specificity, such as MASS and ROSIER, should be used to achieve higher overall accuracy. In emergency departments, the ROSIER scale should be used as the scale of choice: in a group of 110 people, 52 of whom had suffered a stroke/TIA, the test did not detect an average of eight (2-18) strokes/TIA. Given the small number of studies evaluating this test in specific conditions, the poor quality of the studies, significant differences in research characteristics and variability in results, these results should be interpreted with caution and require further confirmation in more carefully planned studies.

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