Thrombolysis during Resuscitation for Out-of-Hospital Cardiac Arrest

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Study Question: Does thrombolysis during cardiopulmonary resuscitation for out-of-hospital cardiac arrest improve survival?

Inclusion Criteria: adults with witnessed out-of-hospital cardiac arrest of presumed cardiac origin and with initiation of basic or advanced life support within 10 minutes of collapse

Exclusion Criteria: suspected noncardiac cause of arrest, known internal bleeding, neurologic impairment, coagulation disorders, pregnancy, participation in another clinical study, hypersensitivity to the study medication, institutionalization of the patient, any other condition that the investigator believed would place the patient at increased risk if included in the trial

Methods:
-prospective, placebo-controlled, double-blind, randomized trial in 66 EMS systems across Europe
-on receipt of an emergency call for suspected cardiac arrest, mobile ICU was dispatched to the scene
-advanced cardiac life support measures initiated, assessed for eligibility for the trial
-patients in PEA or asystole underwent randomization immediately after IV access obtained
-those in VF or pulseless VT underwent randomization if up to 3 defibrillation attempts were unsuccessful in obtaining ROSC
-randomized to receive IV tenecteplase (dosed according to body weight) or placebo
-adjunctive ASA or heparin was not used
-subsequent care, including transport, following standard EMS practice

Outcomes:
Primary outcome: 30-day survival
Secondary outcomes: hospital admission, ROSC, 24-hr survival, survival to hospital discharge, neurologic outcome

Results:
-baseline clinical and demographic characteristics were similar among the groups
-mean age 65 years, 21.1% women, median time from collapse to administration of study drug was 18 min
-only statistically significant difference between groups was that MI was the assumed cause of arrest in a larger proportion of the tenecteplase group
-after review of data from first 443 patients, asystolic patients were eliminated from enrollment due to low survival
-after 1050 patients enrolled, the trial was terminated prematurely for futility
-525 patients randomized to receive tenecteplase, 525 received placebo
-no significant difference between groups in any of the following: 30-day survival, hospital admission, ROSC, 24-hr survival, survival to hospital discharge or neurologic outcome
-more intracranial hemorrhages in the tenecteplase group

The Bottom Line:
Compared to placebo, there was no improvement in outcome when tenecteplase was used without adjunctive antithrombotic therapy during advanced life support for out-of-hospital cardiac arrest.