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## Strategies to save the brain Clinical aspects

### Strategies used since 1970

- Symptoms less than 24 hours duration
  - Probably not hemorrhagic stroke
    - Warfarin therapy
- High blood pressure
  - Possibly malignant hypertension
    - Acute antihypertensive drug therapy
- Penumbra
  - Tissue at risk
    - Neuroprotective drug therapy
    - Cooling

## Strategies used since 1970

- Inflammation
  - Steroids
    - Betamethason
  - Cell adhesion
    - Antibodies
- Antioxidants
  - Free radical scavengers
    - PBN, NXY

## Strategies used since 1970

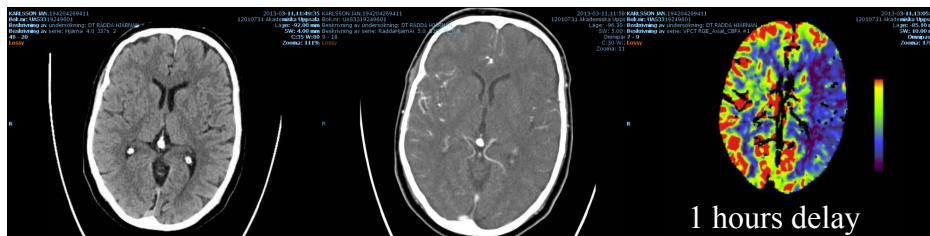
- Revascularizations
  - Fundamental – alone or in combination
    - Thrombolysis
      - i.v. Streptokinase
      - i.v. Alteplase - rtPA
    - Thrombectomy
      - Catheter-directed thrombolysis
      - Mechanical
      - Combinations

## Evidence-based acute therapy

- Time is brain
  - I.v. thrombolysis
    - <90 min 1 saved per 4.5 treated
    - 90-180 min 1 saved per 9.0 treated
    - 180-270 min 1 saved per 14.0 treated

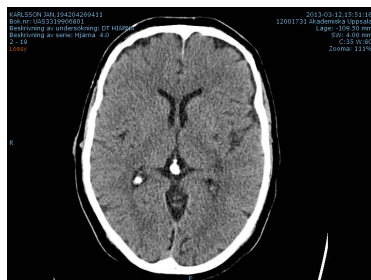
## Case No. 1

- Man 70 years falls out of his car
- Hospital within 40 minutes
  - Hemiparesis and speech difficulties
  - CT shows



## Case No. 1

- Receives i.v. thrombolysis
- Almost completely restituted
- Control CT shows no large infarct



## Case 2

- Woman 75 years
- Repeated attacks
  - dysarthria
  - ataxia left arm and leg
  - 10 minutes to 1½ hour
- CT angiography shows
  - Brain normal findings
  - Stenosis right vertebral artery
- Receives antiplatelet therapy
  - Loading dose of aspirin

## Case 2

- 36 hours later severe attack of left-sided ataxia
- Threatening completed stroke
  - Thrombolysis?
  - Heparin?
  - More antiplatelets?
  - What else?

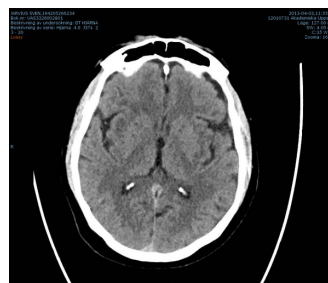
## Case 2

- CT shows
  - Possible infarction

First



Second



## Case 2

- Possible infarction
  - Thrombolysis contraindicated
    - Receives heparin infusion
    - No more attacks
    - Leaves hospital day 3 with
      - Aspirin and clopidogrel for 1 month
      - Aspirin alone thereafter

## Save the brain - clinical aspects

- Faster access to i.v. thrombolysis
  - Imaging
    - Minutes
  - Better differentiation
    - Ischemia
      - Decrease in the blood supply
    - Infarction
      - Necrosis

# The End

