Treating Prehospital Hypertension in Stroke

What does the literature tell us to do?

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Disclosures

- None related to current presentation
The question we are trying to answer

- If a patient is having an acute stroke in the back of an ambulance with an elevated blood pressure...does a benefit exist on any endpoint in the literature if I give him a blood pressure medicine.
  - At what number should I treat
  - At what time interval should I continue to treat
  - How much should I lower the blood pressure
The answer

I have no idea

But that is ok because nobody else does either

JAMA 3/2014 Saver: Major unresolved issue is what to do with hypertension in Early Ischemic Stroke

The literature does not answer this question

So we have to ask different but somewhat similar questions
Factors causing prehospital hypertension

Internal

stroke

chronic hypertension

External

lights

sirens

driving fast

anxiety
Potential Benefits

- Reduce cerebral edema
- Reduce incidence of hemorrhagic transformation
- Prevent concurrent myocardial injury
Potential Harm

- Diminish collateral flow through arteries that have lost autoregulatory function because of ischemia
- INCREASE the size of infarction
- Blood pressure naturally declines after stroke
AHA/ASA “Guidelines” (made-up)

- TREAT IF
  - TPA potential stroke patient <185/110
  - nonTPA potential stroke patients <220/120
the appropriate treatment of the blood pressure in acute stroke remains controversial. In a majority of patients, a decline in blood pressure without any specific medical treatment will occur. The blood pressure often falls spontaneously when the patient is moved to a quiet room, the bladder is emptied, pain is controlled, and the patient is allowed to rest.
And Now.... the literature.
CATIS Trial

- 2038 patients in tx group 2033 patients in control group
- Randomized
- Largest trial of blood pressure treatment
- Difference at 24 hours 8.2 mmHg
- No difference in death or permanent disability at 2 weeks or 3 months
- He J JAMA 2013
literature

- No change in functional outcome
  - INWEST TRIAL
  - SCAST TRIAL
  - CHIPPS TRIAL
Cochrane Database

- Last reviewed 2008
- No evidence to treat-conclusion
- 12 studies
COSSACS TRIAL

- Randomized 763 patients
- 13 mmHg difference in SBP at 2 weeks
- No difference at 2 weeks in death or dependency

- Robinson TG LANCET 2010
SCAST TRIAL

- Randomized 2029 patients with subacute stroke
- ARB vs. placebo
- 5 mmHg difference in SBP
- No difference in death, MI or recurrent stroke at 6 months
- Mild worsening in ARB group of functional outcome

Sandset JC Lancet 2013
Conclusions

- No good evidence of acute blood pressure management in the prehospital setting for acute stroke.
- No good evidence in the ED either!!
- External factors in prehospital setting contribute to elevations in blood pressure
- More patients definitely eligible for TPA based on 185/110
Questions

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