

REMOTE ISCHEMIC CONDITIONING



RESIST
Stroke
trial

Med støtte fra

TrygFonden



Aarhus University Hospital



BAGGRUND

Reperfusionsterapiene har revolutionert AIS behandlingen, **kun et fåtal er dog kandidater**

Begge tilstande er forbundet med betydelig morbiditet og mortalitet

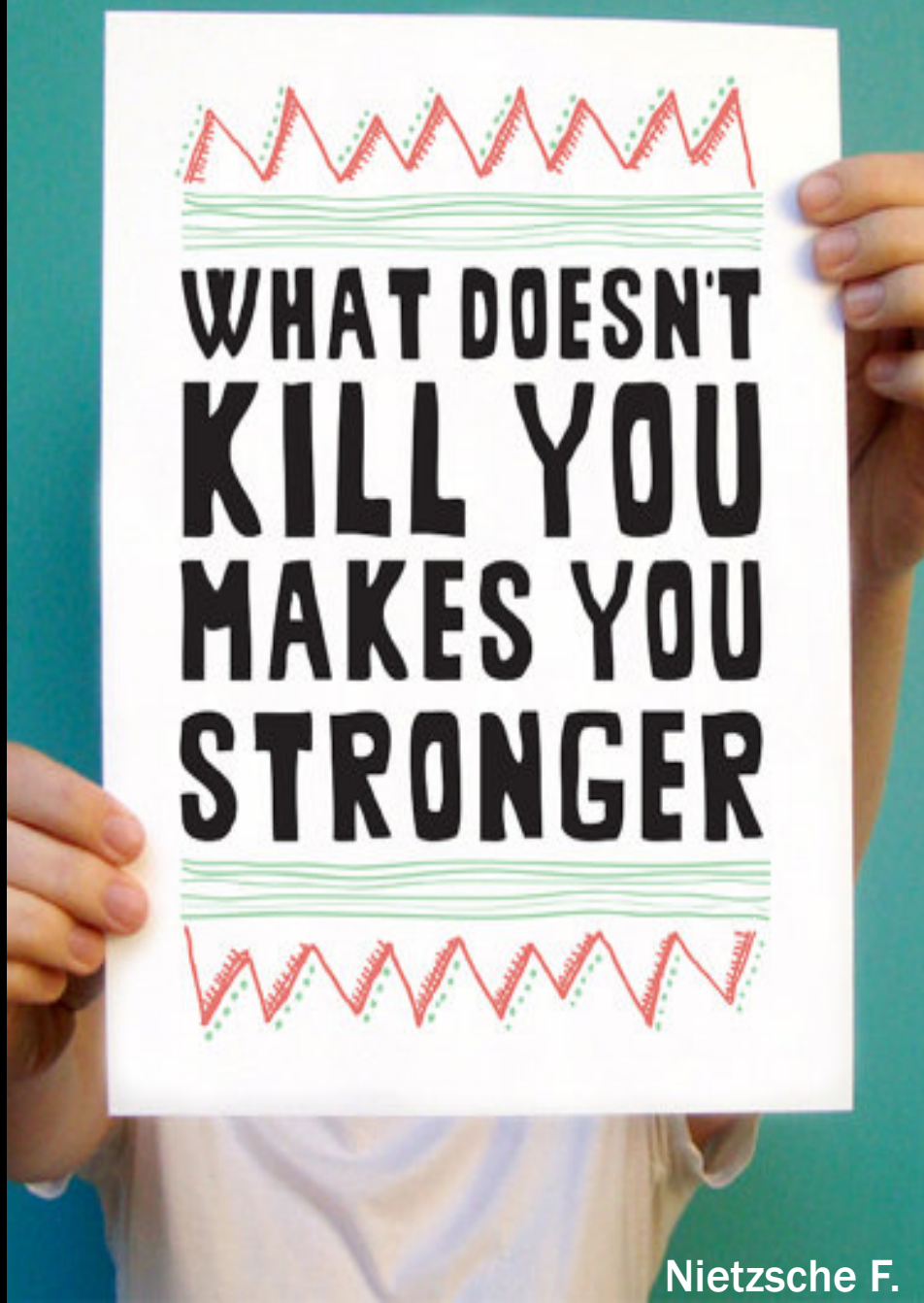
Ved ICH, er der ingen effektive behandlinger.

Der er et stort behov for supplerende beskyttelse ("neuroprotektion") i den akutte fase

HVAD ER RIC?

“Beskyttende effekt på celle, vævs, organ eller på organismeniveau, der indtræder når denne udsættes for stressorer der i høj dosis er skadelige, men i mindre doser stimulerer endogene beskyttelsesmekanismer. Ved iskæmisk konditionering er stressoren iskæmi”

Hess D. 2015.



HVAD ER RIC – 5 PUNKTER

1. HISTORIE

2. VIRKNING

3. VINDUET

4. PRE-PER-POST

5. PRAKSIS

1. RIC HISTORIE

1986 (Murry et al.)

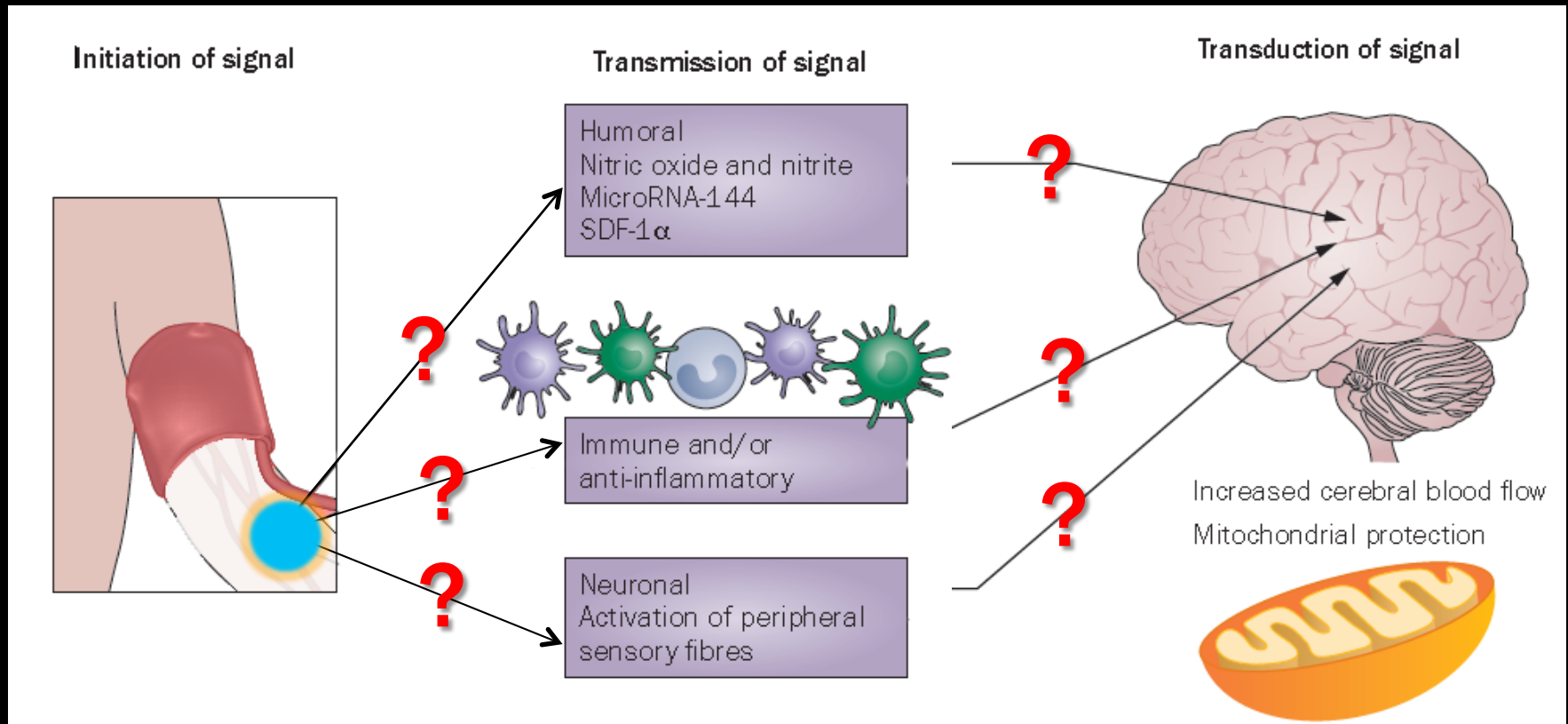
4 x 5min coronar okklusion beskyttede myokardiet mod efterfølgende langvarig (3t) iskæmi/iskæmisk reperfusionsskade.

1994 blev remote effekt opdaget

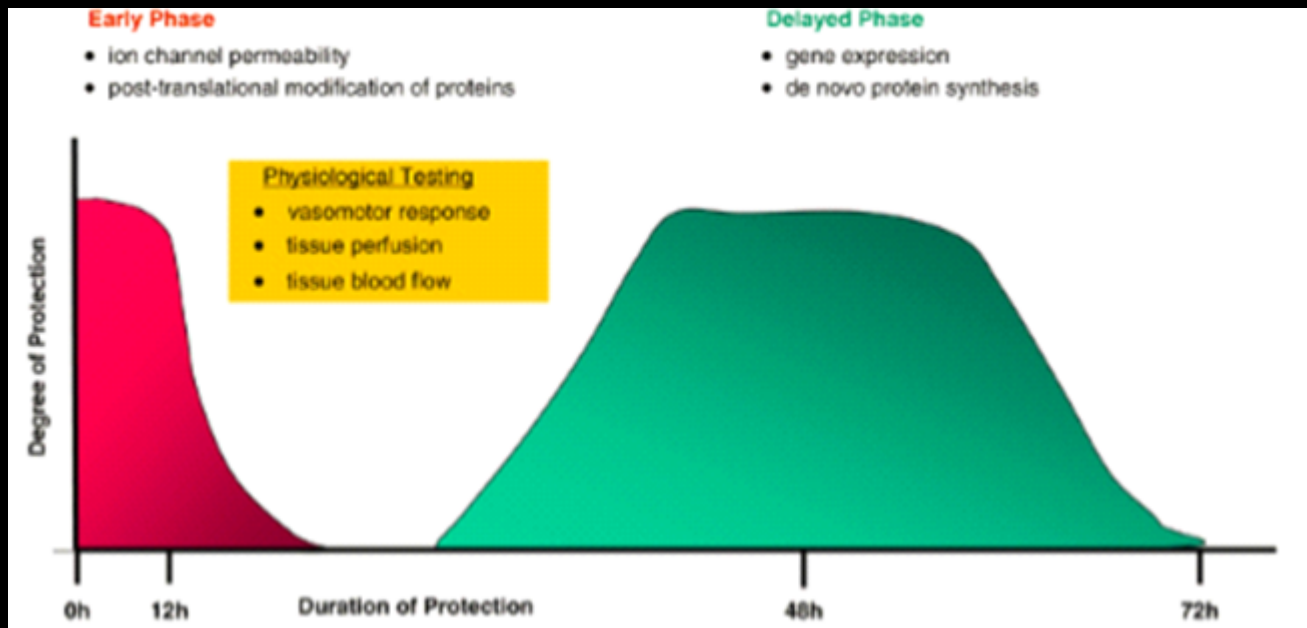
Intermitterende okklusion af a. mes.sup beskyttede myokardiet mod langvarig coronar okklusion.

2002: Samme effekt ved ekstremitetsafklemning/ iskæmi.

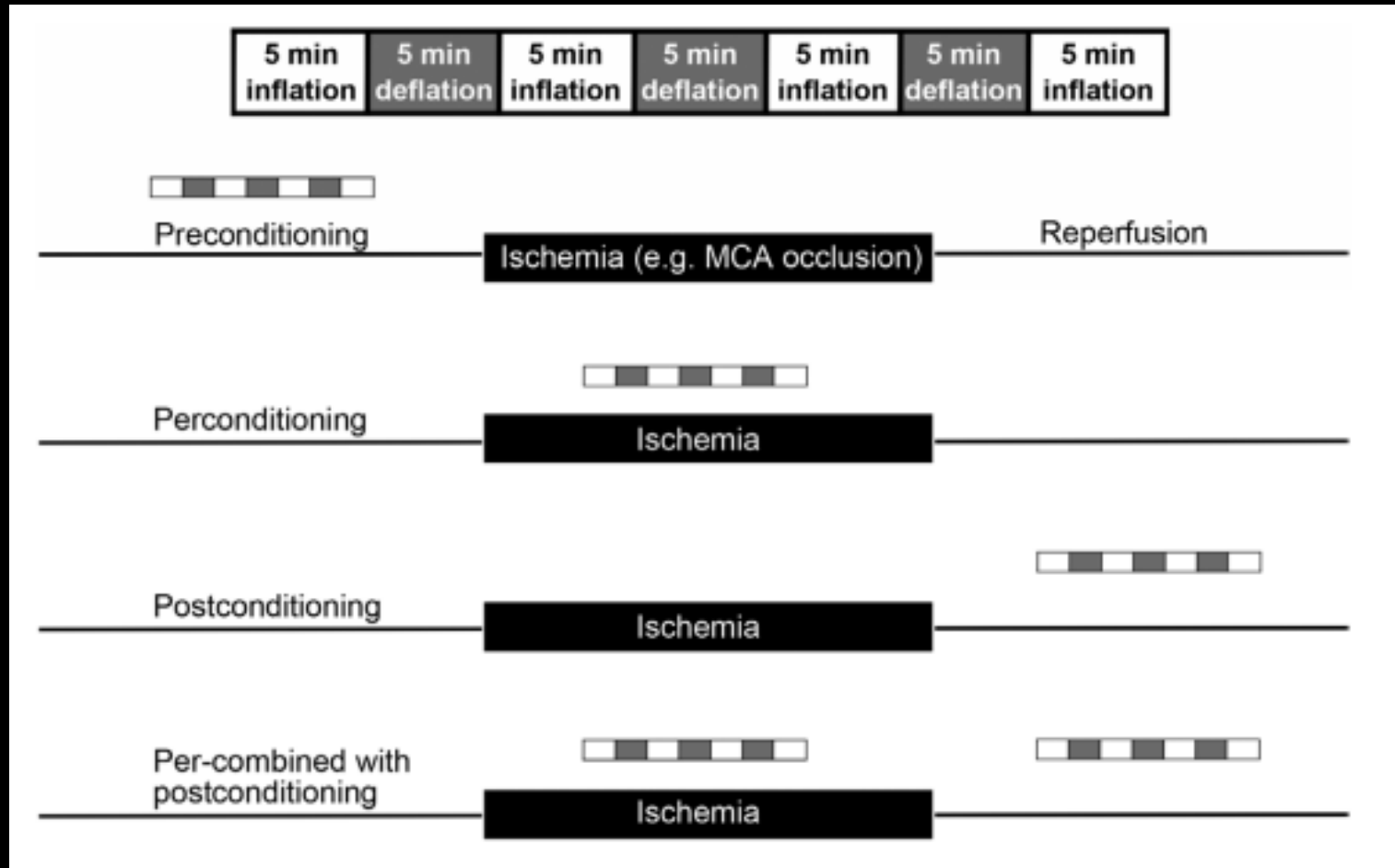
2. RIC VIRKNINGSMEKANISMER?



3. RIC "VINDUET"



4. PRE-, PER- OG POST



5. RIC I PRAKSIS

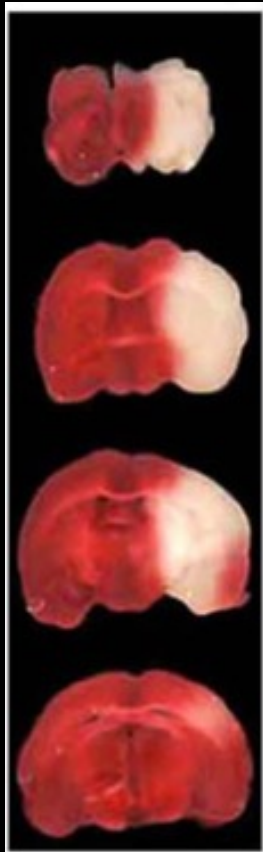


1 cyklus

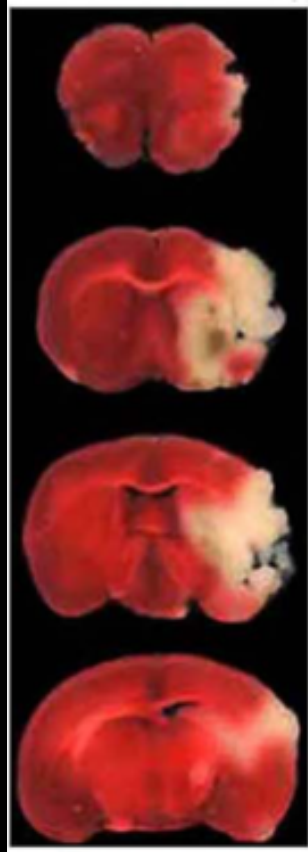
RIC & STROKE PRÆKLINISK

*Hoda et al. Remote Ischemic
Perconditioning is Effective After
Embolic Stroke in Ovariectomized
Female Mice, Transl Stroke Res. 2014.*

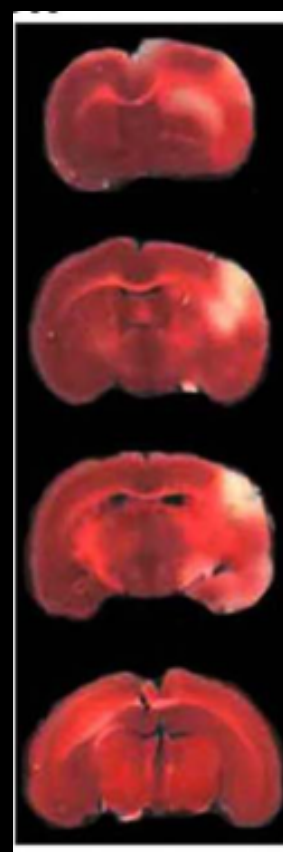
-RIC/-IV tPA



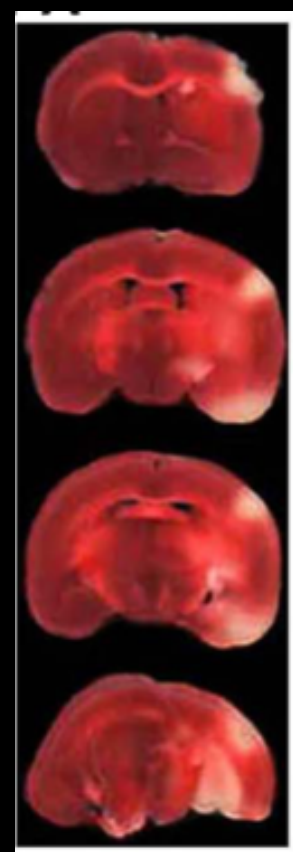
-RIC/+IV tPA



+RIC/-IV tPA

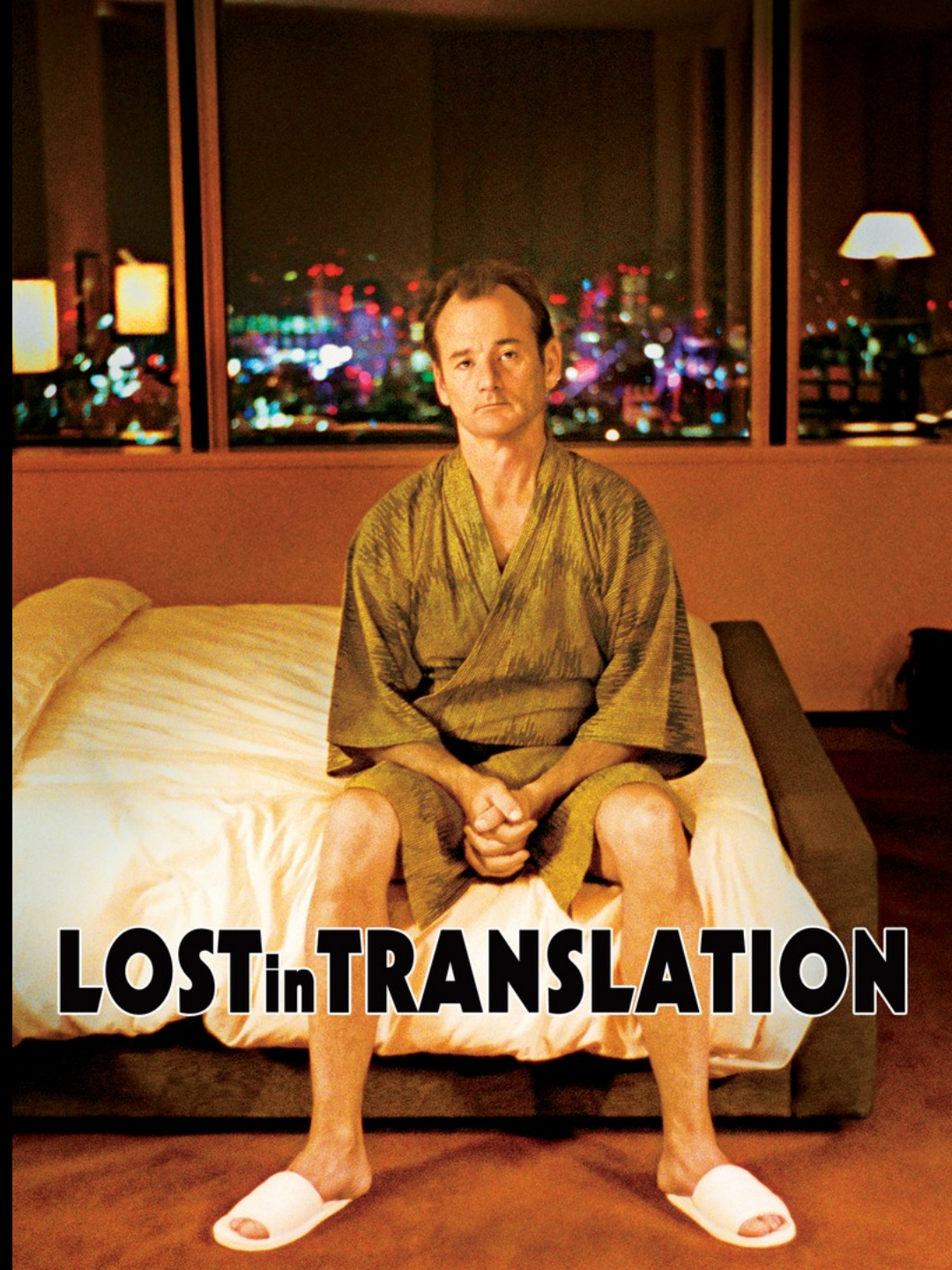


+RIC/+IV tPA



**“TRANSLATIONAL
RESEARCH:
CROSSING THE
VALLEY OF DEATH”**

NATURE 2008



LOST_{in}TRANSLATION

RIC & STROKE

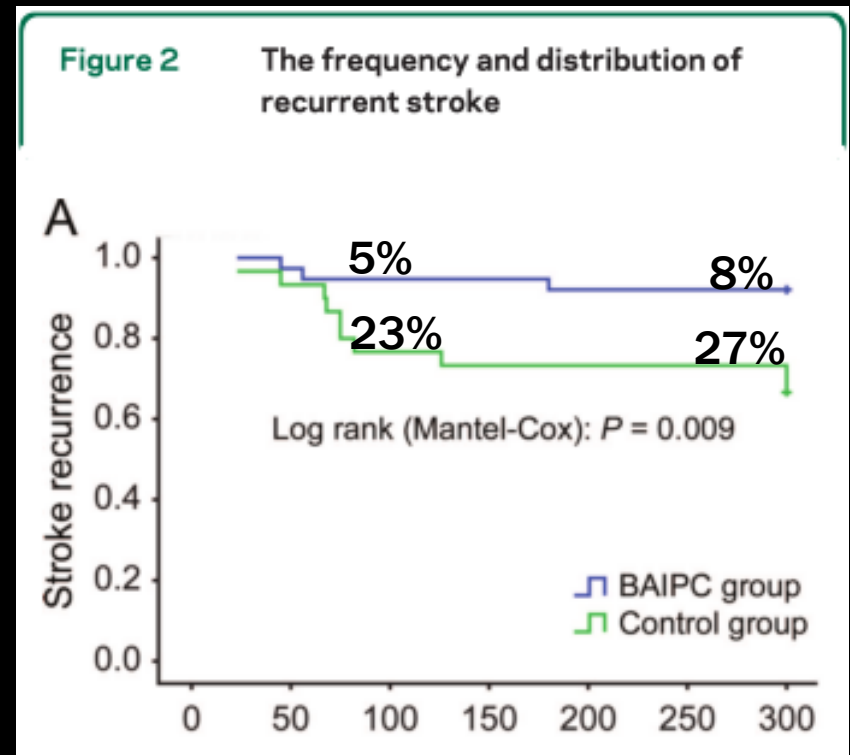
Meng R. et al. Upper limb ischemic preconditioning prevents recurrent stroke in intracranial arterial stenosis.

Neurology 2012

68 pt symptomatiske IAS

5 x 5/5min bilat OE RIC

2xdgl i 300 dage



RIC & STROKE - AKUT

Hougaard et al. Remote Ischemic Perconditioning as an Adjunct Therapy to Thrombolysis in Patients With Acute Ischemic Stroke: A Randomized Trial. Hougaard et al. 2013. Stroke

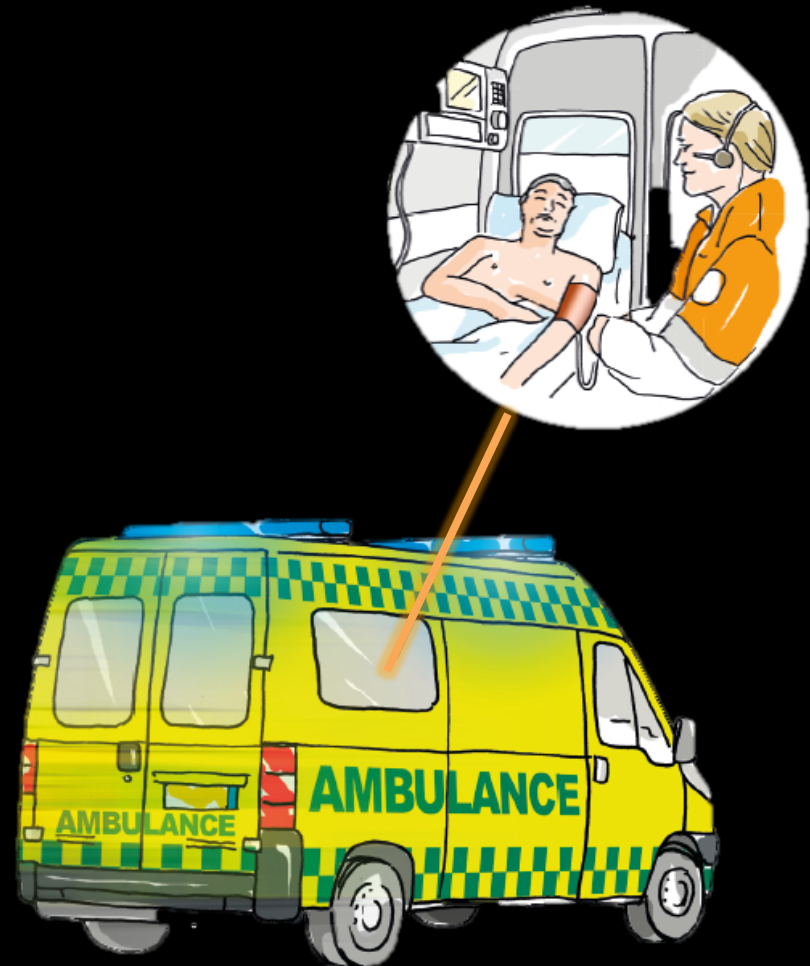
Præhospital RIC

Øget chance for overlevelse af hjernevæv efter 1 måned (voxel-by-voxel logistical analysis)

Kun 41% fik komplet RIC

42 TIA vs 16, og lavere NIHSS (Ingen præhospital stroke score)

Tilfælde? Behandlingseffekt?



RECAST TRIAL

T.England. Remote ischemic conditioning after stroke

trial (RECAST). ESOC 2016. Unpublished

Randomiseret, sham-controlled
26 AIS patienter (<24t)
(13RIC/13kontrol)

NIHSS 90 dage lavere i RIC
gruppen

Forskel -3.5 NIHSS
(95%CI:-6.5;-0.4)

Ikke forskel på mRS

“A large trial is now warranted”



RESIST

STROKE TRIAL

REMOTE ISCHEMIC CONDITIONING IN PATIENTS WITH ACUTE STROKE : A MULTICENTRE RANDOMIZED, OPEN LABEL WITH BLINDED END-POINT STUDY, EXAMINING THE EFFECT ON DISABILITY

Population:

2500 præhospitalt mistænkt stroke
(1380 AIS patienter, 138 TIA DWI+, 138 ICH)

Primære endemål:

Funktionsniveau (**mRS**)
efter **3** og **12** måneder hos akut iskæmi
stroke (AIS) patienter
Akut hæmatom vækst
hos ICH patienter (safety outcome)

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REMOTE ISCHEMIC CONDITIONING IN PATIENTS WITH ACUTE
STROKE : A MULTICENTRE RANDOMIZED, OPEN LABEL WITH BLINDED
END-POINT STUDY, EXAMINING THE EFFECT ON DISABILITY

Inklusionskriterier (præhospitalt)

Alder ≥ 18 år

Præhospital mistænkt
stroke (CPSS)

Debut af stroke-
symptomer < 4 timer før
RIC behandles kan
startes

Selvhjulpen (mRS ≤ 2)

Inklusionskriterier (strokecenter)

Akut iskæmisk stroke (AIS)
(incl TIA DWI+)

Intracerebral hemorrhagi
(ICH)

TIA og non-stroke diagnose
(kun register opfølgning)

Eksklusionskriterier

Kendt cerebralt aneurisme,
AVM, tumor eller absces.

Graviditet

Kendt svær arteriel
stenose i
overekstremiteterne/AV
shunt

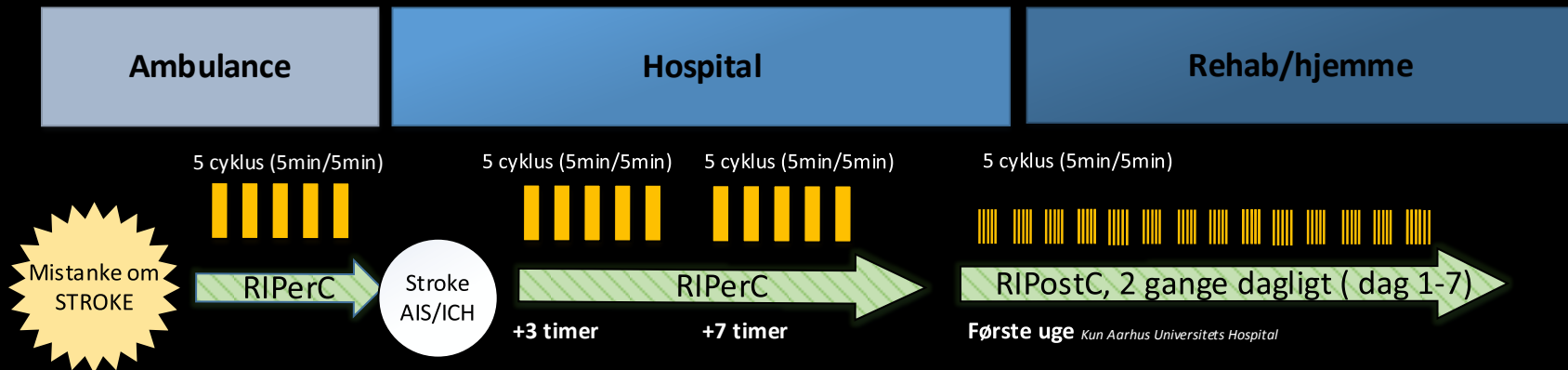
Samtidig akut livstruende
medicinsk tilstand

Medicin: Ciclosporin,
Glibenclamid

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"Stroke RIC" device



5 cyklus á 5/5min

Cuffpressure : 200 mmHg

eller

systolisk BT + 35mmHg, hvis BTsys > 175mmHg)

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REMOTE ISCHEMIC CONDITIONING IN PATIENTS WITH ACUTE
STROKE : A MULTICENTRE RANDOMIZED, OPEN LABEL WITH BLINDED
END-POINT STUDY, EXAMINING THE EFFECT ON DISABILITY

Studie start: Juni 2017

Forventet slut: Jan 2023

Tak for opmærksomheden

Spørgsmål?