Multicenter randomized clinical trial of endovascular treatment for acute ischemic stroke. The effect of periprocedural medication: acetylsalicylic acid, unfractionated heparin, both or neither.

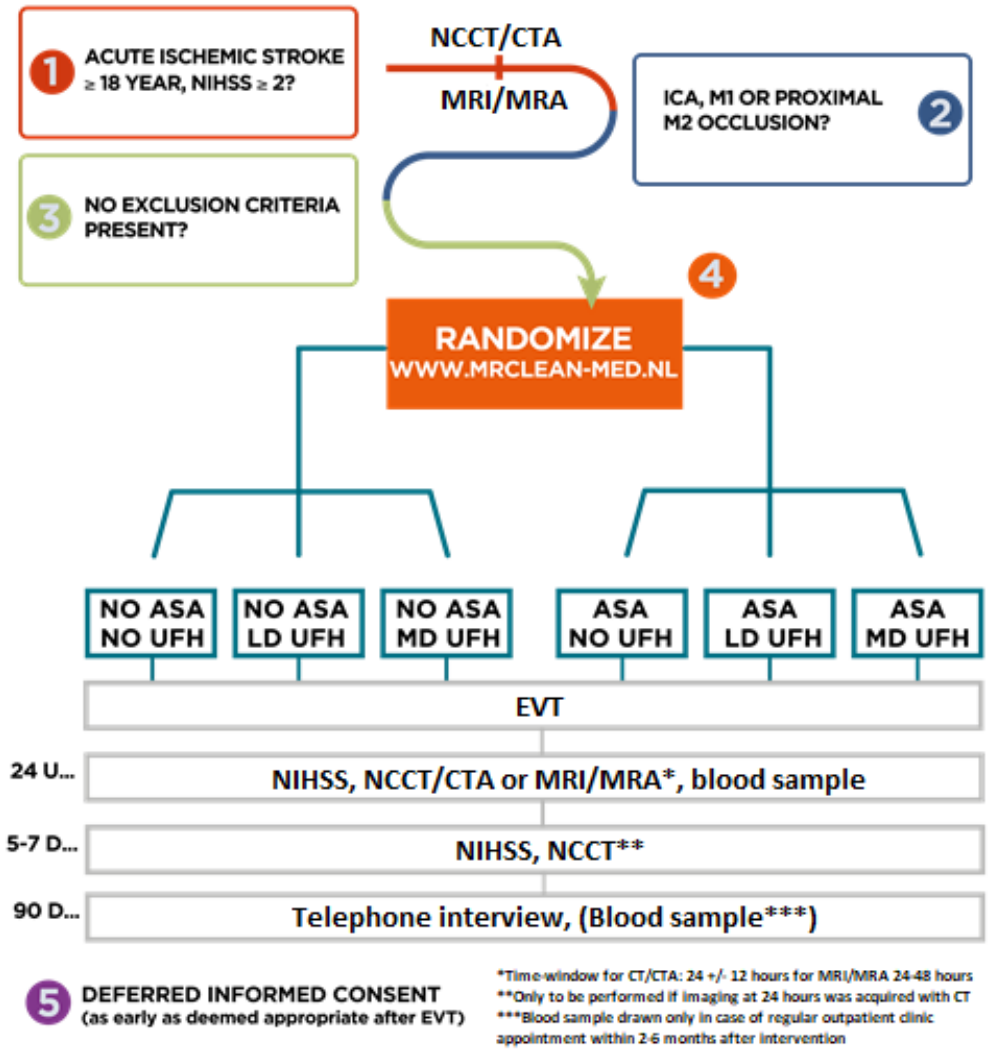
Rationale

- Intravenous antithrombotic agents are often used during endovascular treatment (EVT) for acute ischemic stroke
- It is unknown whether the potential benefits outweigh the potentially increased risk of symptomatic intracranial hemorrhage
- Consequently there is large practice variation

Aim

- To assess the effect of intravenous administration of acetylsalicylic acid (ASA) and unfractionated heparin (UFH), alone or in combination during EVT for acute ischemic stroke

Design



Treatment allocations

Acetylsalicylic acid:

- No acetylsalicylic acid (NO ASA)
- Loading dose of 300 mg (ASA)

Unfractionated heparin:

- No unfractionated heparin (NO UFH)
- Low dose (LD UFH):
  Loading dose of 5000 IU, followed by 500 IU/h for 6 hours
- Moderate dose (MD UFH):
  Loading dose of 5000 IU, followed by 1250 IU/h for 6 hours

Safety

- Independent and unblinded data-safety monitoring board (DSMB) performed regular safety assessments
- In April 2019 (n = 128) enrollment in MD UFH arms was stopped because of safety concerns
- In January 2021 (n=628) enrollment in the remaining arms was stopped, again because of safety concerns

Results

Acetylsalicylic acid (ASA) vs. no ASA	ASA [n=310]	NO ASA [n=318]	Adjusted (c)OR (95% CI)
Primary outcome			
mRS at 90 days (± 14 days), median [IQR]	3 [1 – 6]	2 [1- 5]	0.91 (0.69 – 1.21)
Primary safety outcome			
Symptomatic intracranial hemorrhage, n (%)	43 (14%)	23(7.2%)	1.95 (1.13 – 3.36)

Unfractionated heparin (UFH) vs. no UFH	UFH [n=332]	NO UFH [n=296]	Adjusted (c)OR (95% CI)
Primary outcome			
mRS at 90 days (± 14 days), median [IQR]	3 [1 – 6]	2 [1 – 4]	0.81 (0.61 – 1.08)
Primary safety outcome			
Symptomatic intracranial hemorrhage, n (%)	44 (13%)	22 (7.4%)	2.00 (1.14 – 3.48)

- No interaction was found between acetylsalicylic acid and heparin on the primary outcome (p = 0.77) and symptomatic intracranial hemorrhage occurrence (p = 0.60)

Conclusion

- Periprocedural treatment with acetylsalicylic acid or heparin is associated with increased sICH risks
- No evidence was found for a beneficial effect on functional outcome
- We recommend to avoid the evaluated dosages of ASA and UFH during endovascular therapy