TITLE (SHORT, 200 CHARACTERS MAX.):

INFECTIOUS COMPLICATIONS POST CARDIAC ARREST - DIFFERENCES AFTER TREATMENT WITH HYPOTHERMIA OR NORMOTHERMIA

MAIN HYPOTHESES TESTED (2 MAX)

We hypothesize that patients treated with hypothermia will be prone to develop more infectious complications compared to patients having normothermia.

We hypothesize that in the subgroup of patients receiving antibiotic prophylaxis mortality is lower compared to a matched group of patients not receiving antibiotic prophylaxis.

Therapeutic hypothermia and controlled normothermia is postulated to increase the rate of infections. The pathophysiological mechanisms comprise reduced inflammatory response and suppression of leukocyte migration and phagocytosis. If this observation is associated with significantly impaired outcome or even mortality is under debate. However, there is consensus that infections lead to prolonged ICU treatment, secondary injury and lastly to cost increase with significant global economic burden. As such, the increased incidence of infectious complications is thought to be one of the major contributors limiting the effects of hypothermia. Antibiotic prophylaxis or high vigilance and aggressive treatment of established infections would then likely be beneficial for this patient category but there is a lack of definite data.

SINGLE CENTER [ ] , MULTICENTER [X] PICO

Patients: Hypothesis 1: All patients included in the TTM2 trail will be eligible.

Hypothesis 2: All patients who has received antibiotic prophylaxis and a controlled chohort of

Prognostic factor: 1: hypothermia 2: antibiotic prophylaxis

Comparison: Hypothesis 1: hypothermia vs. normothermia

Hypothesis 2: prophylactic antibiotics vs. no prophylactic antibiotics

Outcome: Hypothesis 1, Primary outcome: Development of sepsis or septic shock

Seconday outcome: 1) Length of stay (LOS) ICU 2) LOS hospital 3) Ventilator free days

Hypothesis 2, Primary outcome Mortality at 180 days

Seconday outcome: 1) Development of sepsis or septic shock. 2) Length of stay (LOS) ICU 3) LOS hospital 4) Ventilator free days

Comment [FS1]: Kommer det finnas overall "infectious complications" eller är det bara "sepsis/septic shock". Kan inte helt utläsa det från dokumentet.

DATA NEEDED FOR THE ANALYSIS (SPECIFY VARIABLES AND MOTIVATE ANY PROPOSED ADDITIONS TO THE ECRF)

No additions to the ECRF required. Biomarkers, CRP, PCT will be analysed from biobank samples at admission, 48 and 72 hours.

LOGISTICS – HOW WILL ADDITIONAL DATA BE GATHERED?

As above.

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BRIEF STATISTICAL ANALYSIS PLAN AND SAMPLE SIZE ESTIMATE

The sample size of the main outcome, mortality, is based on a total mortality of 50% and with a relative risk reduction of 20%. In the first TTM trial the overall incidence of infectious complications was 53% which thus gives a similar statistical power for finding a RRR of 20% in infectious complications.

Comment [FS2]: Vet ej hur manga patienter som kan förväntas få profylaktisk antibiotika så svårt att estimera något här. Har du någon idé?

FUNDING (IF APPLICBABLE)

Covering of cost for the biobank analysis will be sought form funding bodies.

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