

4710-A-2217

## **Hypothermia After Cardiac Arrest in Large Animals trial (HACA-LA)**

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### **Background:**

Hypothermia in post-cardiac arrest is neuroprotective in animal experiments, however few high-quality studies have been performed in larger animals with human-like brains. The role of postischemic hypothermia has been questioned after publications of large clinical trials, showing no benefit.

Our aim is to investigate whether immediate cooling or a delay of cooling by 2 hours to 33°C post-cardiac arrest confers a benefit compared to normothermia in large animals.

### **Materials and methods:**

Adult female pigs are anesthetized, mechanically ventilated and kept at baseline parameters including normothermia (38°C). All animals are subjected to 10 minutes of untreated VF followed by 4 min CPR with mechanical compressions before first countershock. At ROSC animals are randomized to either immediate cooling (EH), delayed cooling (DH) or normothermia (NH) for a total of 30 h including rewarming

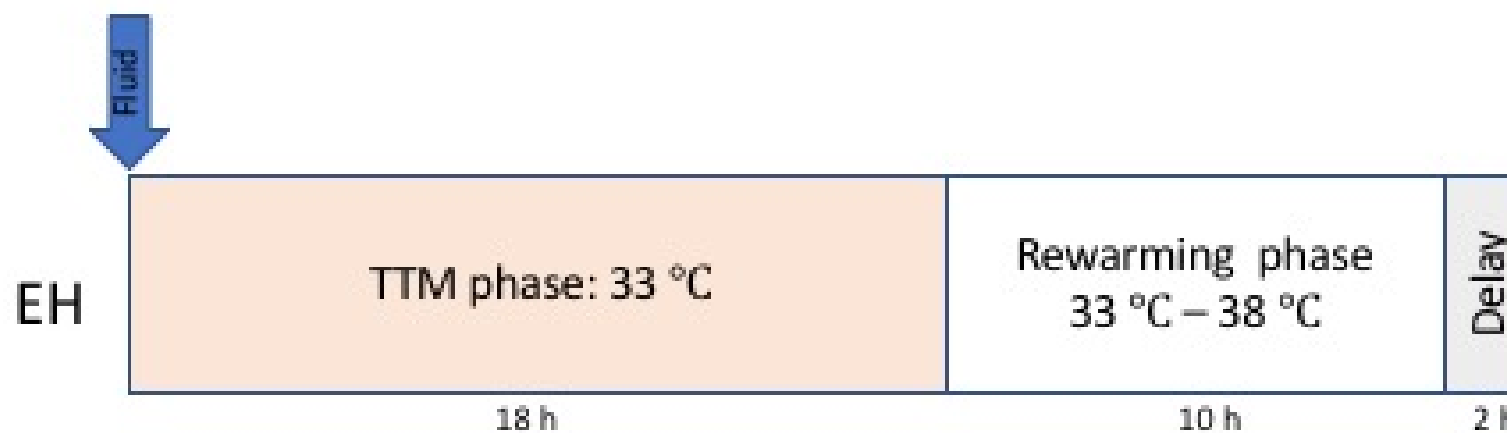
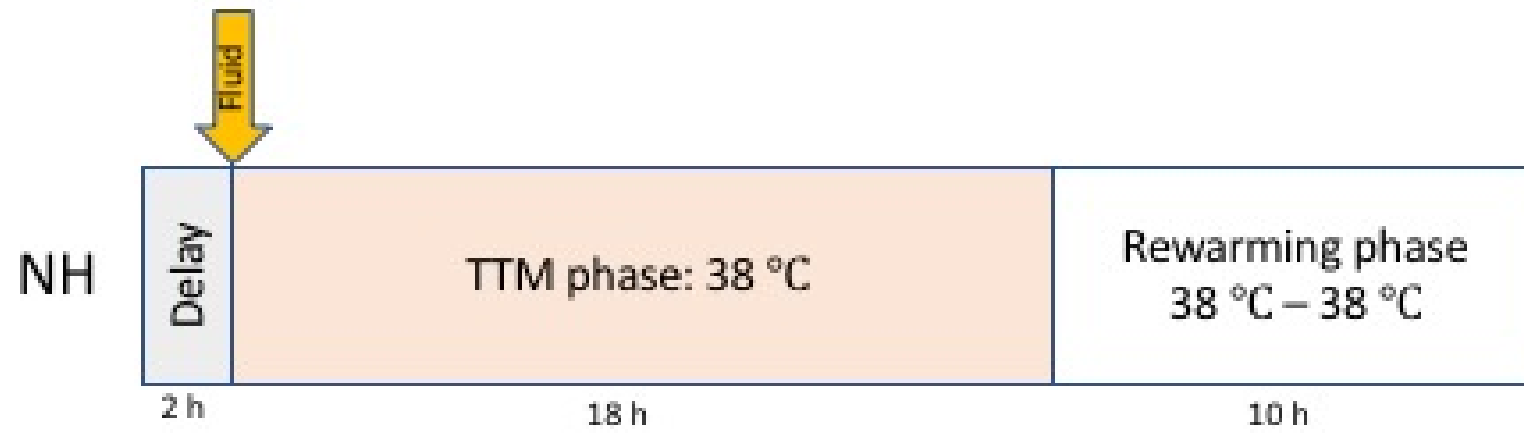
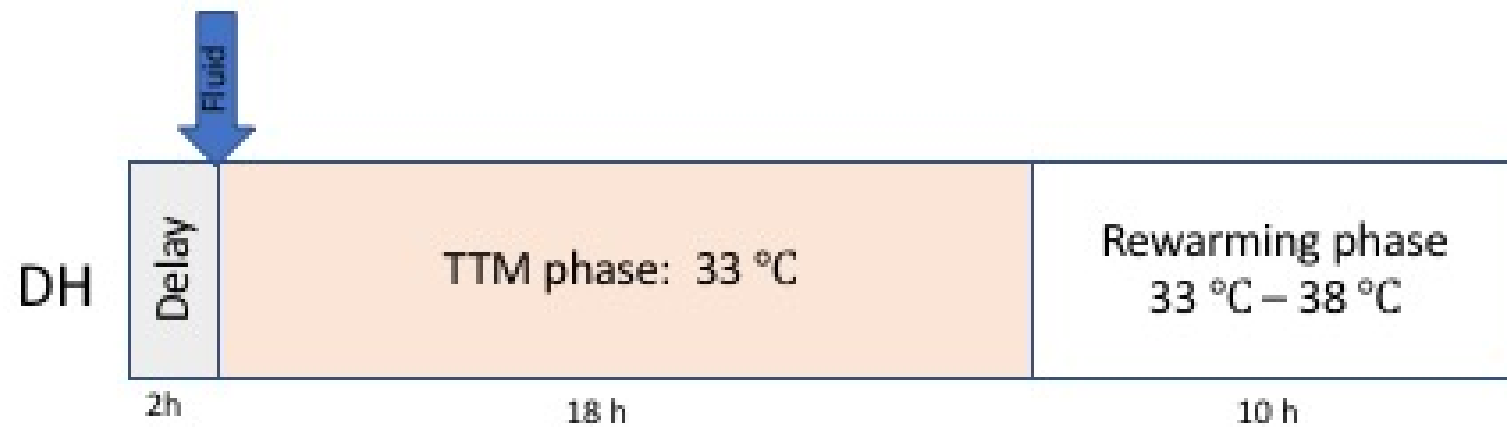
Animals without ROSC are put on ECMO and entered into another study. Animals are extubated and kept alive for 7 days with daily neurological and neurocognitive testing. Blood samples are collected for biomarkers of brain injury. The primary outcome measure is histological brain injury at day 7. A power analysis has suggested 10 animals in each arm (total n=30) to show a significant difference between the DH and NH arm with a power of 80% and a significance level of 2.5%.

### **Results:**

Data per August 29th 2022 show that 31 animals have been randomized.

### **Conclusion:**

High-quality animal experiments in relevant large animal models are necessary in order to close the research gap regarding postischemic hypothermia.



Randomization

Extubation