Heart rate may predict survival and brain function in comatose cardiac arrest survivors

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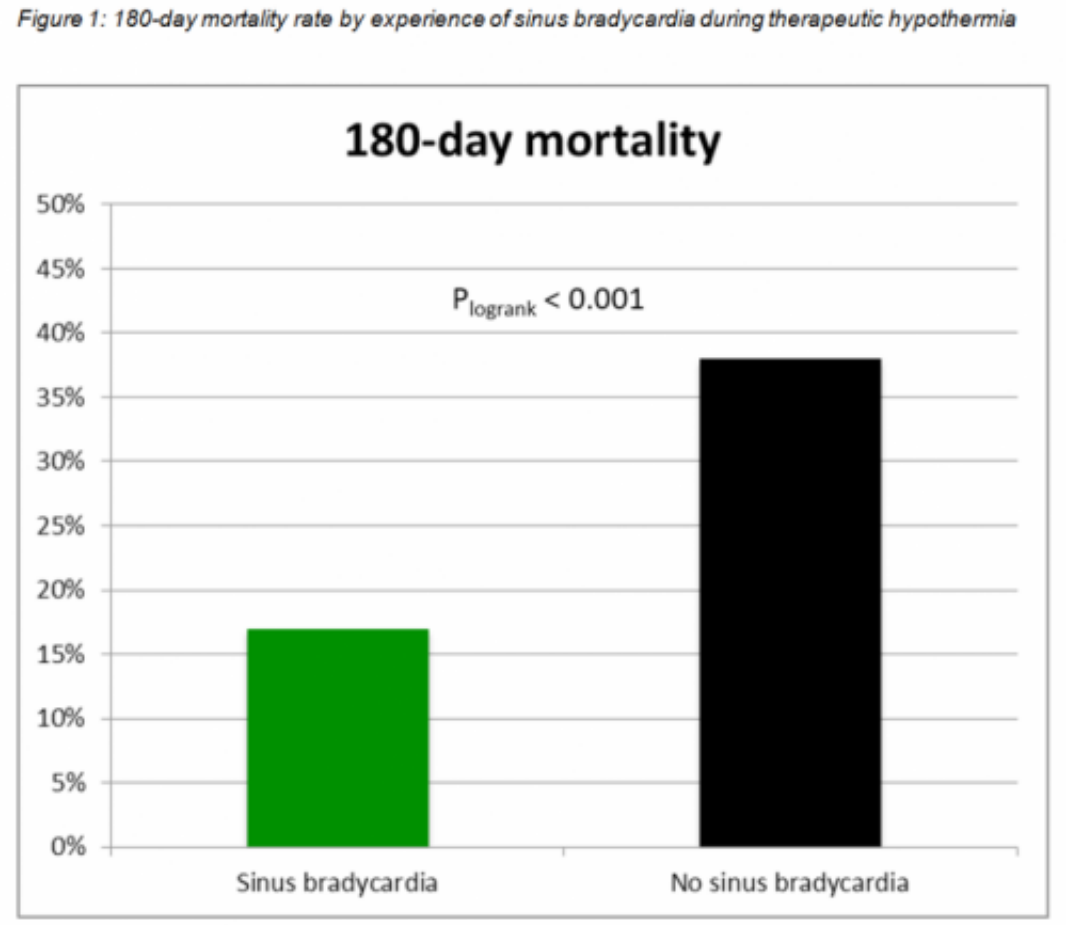

180-day mortality rate by experience of sinus bradycardia during therapeutic hypothermia. Credit: Jakob Hartvig Thomsen

Researchers may have developed a way to potentially assist

prognostication in the first 24 hours after out-of-hospital cardiac arrest (OHCA) when patients are still in a coma. Their findings are revealed today at Acute Cardiovascular Care 2014 by Dr Jakob Hartvig Thomsen from Copenhagen, Denmark.

Acute Cardiovascular Care is the annual meeting of the Acute Cardiovascular Care Association (ACCA) of the European Society of Cardiology (ESC) and takes place 18-20 October in Geneva, Switzerland.

Dr Thomsen said: "When we talk to relatives and friends immediately after a cardiac arrest we often tell them that we're not able to say much about the prognosis for their Dad, Mom, friend, etc, for the next 3 to 4 days. This is incredibly distressing and loved ones are desperate for more information."

He added: "Therapeutic hypothermia is used in comatose survivors of OHCA to protect them from brain damage. Current recommendations say that prognostication should not be made until 72 hours after hypothermia when patients have returned to normothermia and the sedation has worn off.1 The prognostic tools presently available are not reliable until after this 72 hour period."

Dr Thomsen continued: "During hypothermia some patients lower their heart rate, which is called bradycardia. We hypothesised that this is a normal physiological reaction and that these patients may have less severe brain injury after their arrest and therefore lower mortality."

The study was conducted in the intensive care unit at Copenhagen University Hospital during 2004-2010 and was supported by the EU Interreg IV A programme. It included 234 comatose survivors of OHCA who underwent the hospital's standard 24 hour therapeutic hypothermia protocol. Heart rhythm was measured hourly and sinus bradycardia

(defined as less than 50 heart beats per minute) was used to stratify the patients. The primary endpoint was 180 day mortality.

The investigators found that patients who experienced sinus bradycardia during therapeutic hypothermia had a 17% 180 day mortality rate compared to 38% in those with no sinus bradycardia (p