

# A UK multi-centre retrospective analysis of the safety of hypothermic circulatory arrest during thoracic aortic surgery

by O Nawaytou | S Sum

Poon | A Oo | M Kuduvalli | D Harrington | J Gaer | C Quarto | F De Robertis | J Pepper | M Field

Abstract Id: 54 Submitted: February 3, 2017 Event: The Houston Aortic Symposium: Frontiers in Cardiovascular Diseases, the Tenth in the Series Topic: Aortic

## Methods

This work is one of a number of studies within the “Big Data Initiative”, formulated within the context of a clinical and research collaborative between three UK hospitals. We constructed a multi-centre integrated virtual data warehouse (1998-2015) and validated data through a strict process of information governance. Standard propensity matching methodologies were employed comparing patients undergoing aortic surgery with and without HCA.

## Results

A total of 2991 patients were included in the study. Those patients having aortic surgery involving HCA numbered 857 while those not requiring HCA numbered 2013. Crude in-hospital mortality (4.7% versus 10.4%;  $P < 0.001$ ), stroke (3.7 versus 8.4%;  $P < 0.001$ ) and 10 year survival ( $P < 0.001$ ) were all significantly different in the non-HCA versus HCA Groups. After risk adjusting for preoperative characteristics such as emergency, redo and age, there were 710 patients in each group. While stroke rate (5.2% versus 8.6%;  $P < 0.012$ ) remained significantly different in the non-HCA versus the HCA Group, in-hospital mortality (8% versus 9%; ( $P < 0.51$ ) and 10 year survival ( $P < 0.21$ ) were not altered.

## Conclusion

Within the limits of a propensity matched analysis, this multi-centre study of patients having aortic surgery, suggests hypothermic circulatory arrest does not add to risk of in-hospital death or 10 year survival but does result in a higher risk of stroke. The study did not control for temperature, duration of HCA or form of cerebral protection. This study provides important data to support operative planning and patient consent with the context of UK practice.