

The role of vascular smooth muscle cell apoptosis in the pathogenesis of bicuspid aortic valve aortopathy.

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(REC reference number: 11/SC/0258; Protocol number: RHM CAR0392)

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The aim of this proposal is to gain approval to collect a blood sample and ascending aortic tissue during organ retrieval from beating heart donors at University Hospital Southampton, Hampshire.

Our study examines the mechanisms by which patients with bicuspid aortic valve disease (BAV) are more prone to developing aneurysms of the ascending aorta than patients with a normal tricuspid aortic valve (TAV). Using fresh, snap frozen tissue we are examining expression of apoptosis related genes in the ascending aorta. We have already collected approximately 40 paired blood and ascending aortic tissue samples from patients with both BAV and TAV and both normal and aneurysmal ascending aortas during cardiac surgery at University Hospital Southampton. However, by definition even the TAV patients with normal aortas are diseased if they are undergoing surgery, and thus cannot act as a true control group. A number of groups conducting similar research previously have obtained control samples from organ donors (see references (1-5) below), which is what our research group would like to do.

We have obtained ethical approval (REC ref: 11/SC/0258) for the following proposal. The transplant specialist nurses at University Hospital Southampton will approach relatives of prospective organ donors according to the standard protocol. In addition, nurses will be briefed regarding our research project, and will offer relatives an information leaflet detailing the procedure of tissue collection and what the research entails. At the earliest opportunity on notification of a prospective organ donation, the on-call nurse will contact a designated member of our research team who will attend the hospital immediately (available 24/7). If consent is provided a single blood sample (approx. 5ml) will be collected on the intensive care unit. In theatre, once the heart has been retrieved the surgeon will be required to cut a small piece of ascending aortic tissue from the transected end that remains in the patient (approx. 5 x 10mm) using tissue scissors available in the standard surgical instrument set. The sample will be dropped by the surgeon (or scrub team) into a sterile tube provided by our research team, who will be present in theatre from the start of retrieval. Collecting the aortic sample will not interfere with, or alter the donated heart because this will have already been removed. Providing this piece of tissue will take no longer than 10 seconds, and will not interfere with the subsequent organ retrieval which can continue as per standard procedure.

The NORS team should be made aware that they would be required to cut a small piece of tissue from the ascending aortic rim that remains in the patient after they have retrieved the heart, and pass this directly to the research team or scrub nurse. The only change to standard practice for the NORS team would be cutting the sample from the ascending aortic stump after heart retrieval is complete. There are no additional actions that the NORS team will need to consider when undertaking this project.

References

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