BHF PROTECT-TAVI

British Heart Foundation Randomised
Trial of Routine Cerebral Embolic Protection
in Transcatheter Aortic Valve Implantation

Summary Protocol

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Funder: British Heart Foundation and Boston Scientific

Sponsor: University of Oxford

Trial Management: London School of Hygiene & Tropical Medicine Clinical Trials Unit

Aim:
To determine whether the routine use of cerebral embolic protection (CEP) devices reduce the incidence of stroke associated with Transcatheter Aortic Valve Implantation (TAVI) for the treatment of aortic valve stenosis.

Background and Scientific Rationale:

Aortic stenosis (AS) is a common condition where the valve leading out from the heart (aortic valve) becomes narrowed (stenosed). Transcatheter Aortic Valve Implantation (TAVI) has become an important treatment option for high-risk patients with AS, as it is less invasive, leads to faster recovery and is associated with less morbidity than aortic valve replacement surgery.

Stroke is a major complication associated with TAVI. The majority of TAVI-related strokes are ischaemic in nature due to embolism and occur early after the TAVI procedure. This means they are caused by debris being released into the circulation and reaching the blood supply to the brain (embolism). TAVI-associated stroke leads to prolonged hospital stay, a reduced chance of returning to independence, and a near 6-fold increased risk of death within 30 days. Stroke increases the cost of the index hospitalisation and doubles rehospitalisation costs. Reducing the risk of stroke during TAVI has important implications for improving patient outcomes and decreasing healthcare costs.

There is increasing interest in the use of Cerebral Embolic Protection (CEP) devices to remove thrombus and debris dislodged during TAVI procedures. Although the National Institute for Health and Care Excellence (NICE) has concluded that there are no safety concerns over the use of CEP devices, the evidence on efficacy is inconclusive.

We shall address this by performing the first appropriately powered multicentre randomised trial to assess the safety, efficacy and cost-effectiveness of the use of CEP devices in TAVIs.

Primary Objective:

- Does the routine use of CEP devices reduce the incidence of stroke associated with TAVI?

Secondary Objective:

- Does the routine use of CEP devices improve stroke, mortality, and cognitive/ disability outcomes?
- Is the routine use of CEP devices cost-effective?

Primary Outcome:

- **Incidence of stroke** at 72 hours post-TAVI, or hospital discharge (if sooner)

Secondary Outcome:

- **Combined incidence of all-cause mortality or non-fatal stroke** at 72 hours post-TAVI or hospital discharge (if sooner)
- **Incidence of all-cause mortality** at 72 hours and 12 months post-TAVI
- **Incidence of stroke as defined by centrally held NHS data** between 72 hours post-TAVI (or discharge from hospital, if sooner) and 30-days post-TAVI
- **Incidence of stroke as defined by centrally held NHS data** between 30-days post-TAVI and the end of the study
- **Cognitive/ Disability Outcomes** at 72-hours post-TAVI or at hospital discharge (if sooner), and up to 12 months post-TAVI
- **Vascular access site and related complications** at 72-hours post-TAVI or hospital discharge (if sooner) and between 6-8 weeks post-TAVI
- **Cost-effectiveness analysis** at 12 months

Inclusion Criteria:

- Participant is willing and able to give informed consent for participation in the trial
- Aged 18 years or above
- Considered to be candidates for TAVI by the clinical team (via any access route where CEP may be used)
- Participant is suitable for treatment with the cerebral embolic protection device in the opinion of the treating physician.

Exclusion Criteria:

- None

In order that this population reflects the true real-world population we have identified **no specific exclusion criteria**.

- Participants involved in observational studies will be eligible for this study.
- Current or previous participation in other ongoing randomised trials will not be disqualifying for recruitment to this study unless treatment is expected to impact on the effect of using a CEP device on stroke.

Trial design:

Open label, multicentre, all-comer randomised clinical trial.

Sample size:

7730 participants undergoing treatment by TAVI. Recruitment is open to all NHS specialist cardiac centres.

Trial treatment:

Participants will be randomised to either have TAVI performed with CEP (intervention arm) or TAVI performed without CEP (control arm).

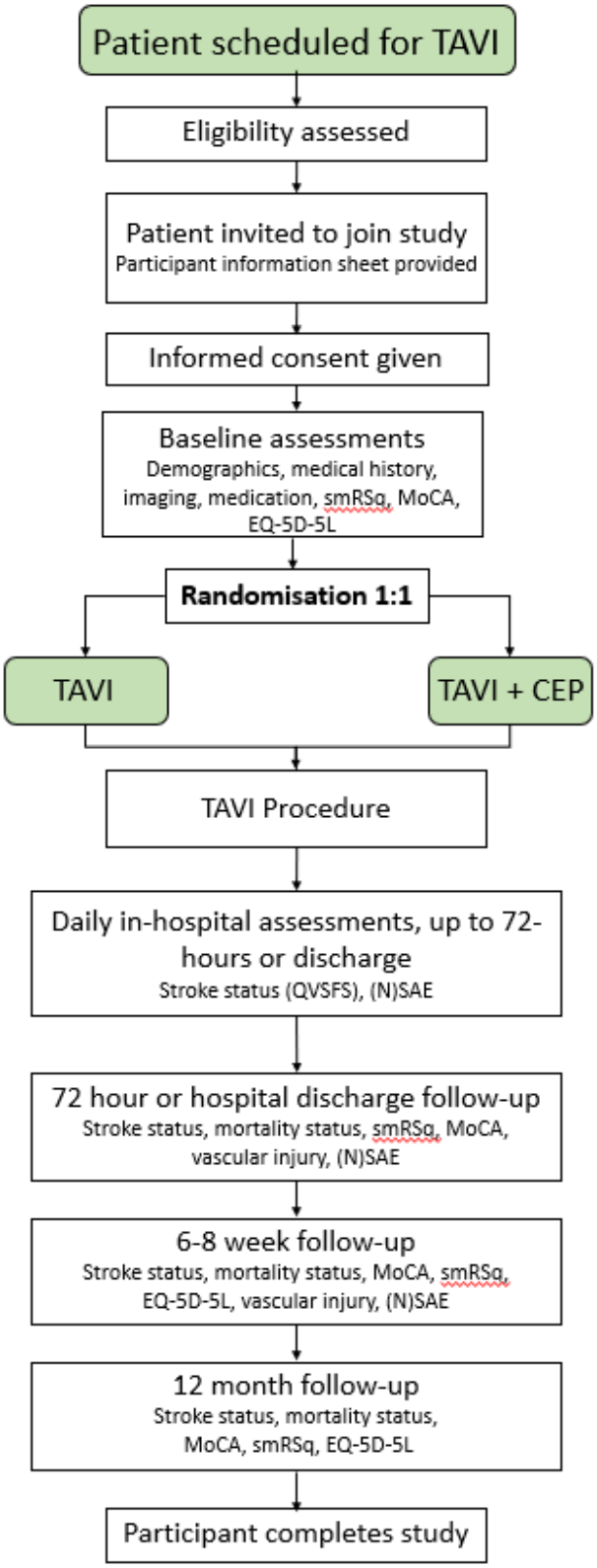
Participants will be followed through 72 hours (or hospital discharge), whichever comes first, and assessed for the primary outcome. See Trial Flowchart on the next page.

CEP device:

The Claret Sentinel dual-filter device (Boston Scientific, MA, USA) is the only device currently approved for use in both Europe the USA. It is a single use, embolic protection catheter inserted into the right radial or brachial artery. The device employs two filters (nitinol frames with 140-micron pores polyurethane film), one delivered to the brachiocephalic artery (Proximal Filter), and one to the left common carotid artery (Distal Filter) before TAVI.

Following the TAVI procedure the system is removed.

Trial Flowchart



Please refer to the full protocol for details of any references mentioned in this summary. Email bhfprotect-tavi@LSHTM.ac.uk to request a copy.