



Arterial stiffness, Blood Pressure and Cardiac output study; ABC-study

Rijnstate

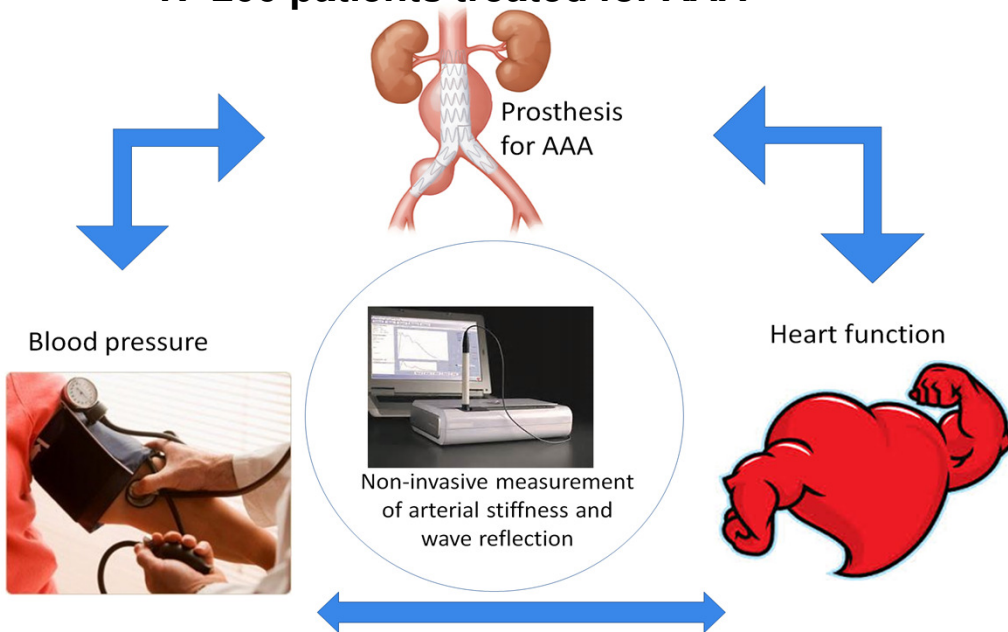
A prospective, multidisciplinary study of arterial stiffness measures in patients treated for aortic aneurysms in relation to blood pressure and cardiac output.

1. Rationale

In our hospital approximately 160 aneurysms are treated. About 30 of these patients are treated by conventional open repair (CORE). The majority is treated with endovascular repair (EVAR). Short-term results of EVAR were very promising in favor of CORE in terms of 30 day mortality. **This benefit was lost in the long-term follow-up**; EVAR was associated with increased rates of graft-related complications and reinterventions. One possible explanation might be that the graft material has adverse effects on the wave propagation along the arterial tree because of a mismatch in elastic properties compared to the native aorta.

2. Design of the study

N=200 patients treated for AAA



3. Overall study aim

To provide insight in the various determinants of the PWA parameters following AAA repair, including the graft material, intraluminal thrombus, and inflammation and to study whether the different PWA parameters predict outcome after AAA repair.

4. Expected outcomes

Part 1: Validate non-invasive versus invasive central blood pressure measurements (PWA) before and after graft implantation in the first 20 patients treated for AAA with an EVAR device.

Part 2: Evaluate changes in non-invasive parameters over time and the influence of intraluminal thrombus on non-invasive stiffness parameters pre- and post treatment of AAA.

Part 3: Determine the relation between non-invasive central pressure measurements and measures of cardiac output obtained by applanation tonometry and echocardiography.

Part 4: Compare the parameters of PWV and PWA between patients treated with different EVAR devices and open repair to identify predictors of outcome.

The following evaluations are planned:

- PTFE versus polyester prostheses (Excluder vs Endurant)
- Endo- versus exoskeleton prostheses (AFX vs Excluder)
- EVAR versus EVAS
- CORE versus EVAR