



Università degli Studi di Genova

**DISC**

Dipartimento di Scienze Chirurgiche e Diagnostiche Integrate

<b>Title: Impact of Thoracic Aortic disease endovascular treatment on Cardiac function (ITACA study)</b>	<b>Area of interest:</b> MED/22 – Vascular Surgery	<b>Principal Investigator:</b> Giovanni Spinella
<b>Funding</b> (NO PROFIT - Company)	<b>RICERCA FINALIZZATA 2018 – MINISTRY OF HEALTH</b>	
<b>Summary</b>	<p>Endovascular approach to thoracic aorta diseases (TEVAR) has radically improved the treatment results and is currently recommended by International Guidelines as treatment of choice for patients deemed at high risk. However, recent long-term follow-up data reveal that patients undergoing TEVAR have a worse prognosis compared to those undergoing open surgical treatment. Moreover, it is known that a stent-graft positioned at the aortic level increases arterial stiffness during diastole, which in turn could increase cardiac afterload and reduce coronary perfusion. Aim of our study is to investigate the ascending aorta and left ventricle remodeling after TEVAR and to correlate these structural and functional changes with cardiovascular complications at follow-up. Final aim is to promote the monitoring of cardiac function after TEVAR with a closer and ad-hoc follow-up, and to stimulate the creation of novel endovascular devices.</p> <p><b>Specific aims:</b></p> <ul style="list-style-type: none"><li>- To investigate early and late geometric modifications and hemodynamic alterations provoked by stent-graft deployment to the aortic arch, the left ventricle, and the coronary arteries.</li><li>- To correlate early and late geometric and hemodynamic modifications of the aortic arch to those of the left ventricle and the coronary arteries, in order to identify potential adverse changes in cardiac structure and function that may adversely affect prognosis.</li><li>- Investigate through structural and computational fluid dynamics simulations the changes in forces and flow at the level of the aortic arch, the ascending aorta, the left ventricle, and the coronary sinuses and correlate numerical results with clinical, structural, and functional findings.</li></ul> <p><b>Partner:</b></p> <ul style="list-style-type: none"><li>- Ospedale Policlinico San Martino – UO Malattie dell'Apparato Cardiovascolare (Prof. Marco Canepa)</li><li>- Università di Pavia – Dipartimento di Ingegneria Industriale e dell'Informazione (Prof. Simone Morganti)</li></ul>	
<b>Link to protocol</b>		