

Flash Presentations Session 2

Patient-specific simulation model of anomalous aortic origin of the coronary artery: development of a new diagnostic tool for risk stratification

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#H2020PartnerHealth

IRCCS Policlinico San Donato (PSD) is an Italian private research and university hospital recognized by the Italian Ministry of Health as Institute for Research, Hospitalization and Health Care (*Istituto di Ricovero e Cura a Carattere Scientifico – IRCCS*) for the **study and treatment of cardiac and great vessel diseases.**

Department: Congenital Heart Disease

Expertise:

- Care for patients with congenital heart disease from neonatal to adult age
- High volume department with excellent outcomes (all type of operation performed in CHD)
- Interventional cardiology with expertise in structural procedures in congenital patients
- 3D and Simulation Laboratory

Past experience in EU-funded projects

EU-China Research and Innovation Partnership funded in 2014 (Contract Number ICI+/2014/348-006); Partner of the MultipleMS project funded in 2017 (GA Nr. 733161); Future subcontractors of the MyPeBS project funded in 2018 (GA nr. 755394); participated in several H2020 and ERANET calls. The Director of the Molecular Cardiology Laboratory is member of the CardioRNA COST Action project (CA17129) Management Committee funded in 2017.

Project Idea

H2020 Topic: SC1-BHC-06-2020: Digital diagnostics – developing tools for supporting clinical decisions by integrating various diagnostic data

Project description: Anomalous aortic origin of coronary artery (AAOCA) is a rare congenital cardiac anomaly associated with sudden cardiac death in healthy young subjects. Death is caused by an ischemic event but standard provocative tests fail to risk stratified subjects. We developed a patient-specific computational model that by simulating effort assess the AAOCA behavior, allow coronary compression estimation and risk stratify subjects.

The project aims to:

- Refine computational model by adding clinical functional data from different diagnostic source (i.e. MRI, effort test) for a precise patients stratification.
- Create automated parameters retrieval from CT.
- Create a multicentric repository for data and diagnostic files to test the model
- Simulation and risk prediction using AI.

Project partnering proposal



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Profile of the partners sought:

- **Cardiac Imaging specialist** – Developed a uniform diagnostic sequence specific for AAOCA from different imaging techniques- Collaborators
- **Engineers and computer scientist** - Refine the model and create automated parameter retrieval and personalized risk prediction (AI) - Collaborators
- Support to develop a multicenter **data/image repository** for ongoing and future clinical trail (big-data)
- Support on planning **patent application**, **EU regulatory application** for authorization to clinical use of software medical device
- **Cardiologist, Surgeons and Radiologist** – Provide patients to enroll in the multicenter clinical trial – Collaborators

We can offer to other proposals:

- The Congenital Heart Disease Dept. can collaborate in a wide range of studies from patient recruitment, cardiological assessment, prospective studies from neonatal to adult age.

Contact details



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