**Research Plan**

**Prevalence and predictors of systemic arterial hypertension in adults with repaired coarctation of the aorta - Insights from the Swiss ACHD Registry**

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**Background:** Aortic coarctation is one of the most common forms ofcongenital heart disease (CHD) affecting about 8% of patients born with CHD. With the advent of open heart surgery and improved pediatric care, survival to adulthood is now the rule. As a consequence, a rapidly increasing cohort of adults with aortic coarctation has evolved over the last decades. However, these adults are not cured. Without appropriate follow-up and management, their risk for cardiovascular complications is much higher compared to the general population. Systemic arterial hypertension is the most frequent complication, even in patients without residual hemodynamic narrowing at the site of coarctation repair, leading to premature atherosclerosis, coronary artery disease, myocardial infarction, stroke and premature death. Importantly, studies have shown that when arterial hyertension is treated adequately, morbidity can be reduced substantially. Therefore, regular screening for systemic arterial hypertension is mandatory in all patients with repaired coarctation and if detected, expert review is recommended. If arterial hypertension cannot be improved by treating recurrent or residual coarctation, prompt initiation of antihypertensive medication is important.

**Aim:** The primary aim is to evaluate the prevalence of systemic arterial hypertension among adults with aortic coarctation in a contemporary cohort of coarctation patients in Switzerland and to estimate the proportion of patients not, or inadequately treated with antihypertensive medication. The secondary aim is to analyze predictors of systemic arterial hypertension in this cohort, and the identification of potential obstacles to the administration of appropriate medical therapy

**Methods:** Since May 2014 all patients followed at specialized Swiss ACHD-centers (University hospitals of Basel, Bern, Lausanne, Geneva and Zurich; and Kantonsspital St. Gallen , Lucerne and Klinik in Park) are enrolled into the prospective Swiss national ACHD registry. The registry is registered at www.clinicaltrials.gov. For the purpose of this study, we will identify all patients with a diagnosis of coarctation of the aorta who have been enrolled into this registry until December 2016. These patients will be the study cohort. In addition to detailed demographic analysis of this cohort we will particularly identify the exact onset of systemic arterial hypertension, type and dosage of antihypertensive medication(s) and detailed echocardiographic analysis of left ventricular hypertrophy and left ventricular function.

### Study Registration and Publication

### The registry is registered at www.clinicaltrials.gov. The study team will undertake all efforts necessary to publish the results of this study in a peer-reviewed medical journal.

## Time table

May 2014 – ongoing Patient recruitment into Swiss registry for adults with congenital heart disease

May 2014 – December 2016 Prospective data collection for outcome measures

January 2017 – April 2017 Analysis of dataset and manuscript preparation

**Requested positions**

Research fellow: Data entering into the Swiss registry **8000 sFr**

Basel, 30.08.2015

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