SwissCVIcorelab
Lausanne, Switzerland

CMR Corelab for the Study “SERVE”

Effect of phosphodiesterase-5 inhibition with Tadalafil on ***S***yst***E***mic ***R***ight ***VE***ntricular function – a multi-center, double-blind, randomized, placebo-controlled clinical trial – SERVE Trial

1. The SwissCVIcorelab

The SwissCVIcorelab is located at the University Hospital Lausanne, CHUV (Centre Hospitalier Universitaire Vaudois), Switzerland, and was founded in 2009. It is headed by Prof. J. Schwitter, who is also the director of the Cardiac MR Center of the University Hospital Lausanne.

2. Contact with participating centers and image data transfer

To achieve a fast data exchange as well as a fast feedback to the participating site regarding CMR data completeness and quality, the preferential data transfer is via the internet. To this end the SwissCVIcorelab receives data via a secured internet channel. In general, when initializing a center, it is given a login and password with which the center then connects to the SwissCVIcorelab website for image data upload (www.chuv.ch/swissCVIcorelab/cmrupload.htm). After connection (by login and password), the data can be sent to the SwissCVIcorelab. The SwissCVIcorelab confirms reception of the data by email.

The data are then checked for completeness and quality.

If the data are incomplete, the center is requested by email to resend the data.

If the data are of inadequate quality, the center is requested by email to rescan the patient, if this is possible within the time window for the CMR scan as defined by the study protocol.

As a backup, the image data will also be sent on CD to the SwissCVIcorelab by regular mail and a copy of the CD will be kept in the patient files (CRF).

The contact to the SwissCVIcorelab is possible via: info.swissCVIcorelab@chuv.ch or by phone (+41 (0) 327 5543) or by alternative email (jurg.schwitter@chuv.ch).

SERVE CMR Protocol:

- In case of extrasystoles or arrhythmia: use prospective triggering
- The order of the measurements below are at the discretion of the center, i.e. the slice orientation for flow measurements can be derived from localizers (point 3 of protocol) or from the angiogram (point 6 of the protocol, in this case flow measurements would be performed after the angiogram)
- In case of pathologies (e.g. stenoses) in the SVC, IVC, or at the baffles, it is to the discretion of the center to evaluate those e.g. by the angiogram, targeted cines, or flow assessments or additional sequences
- A non-invasive cuff blood pressure measurement should be obtained immediately before the flow measurements or thereafter.

1. Localizers to identify short-axis orientation	3 min
2. cine SSFP acquisitions: Breath-holds Short axis: Slice thickness/gap: 8/0mm, spatial resol: 1.3 – 2.0mm, temp. resol: 30ms phases to reconstruct: 40 2, 3, 4 chamber long-axis views (parameters as for short-axis)	12 min
3. Localizers to identify orientations of RPA and LPA, asc. aorta (level of RPA) For localizers, use pulse sequences at your discretion. Asc. aorta: to measure 3-4 cm above the aortic valve (to minimize turbulent flow area), if this asc. aorta location is cutting into the pulm. trunc (PT) bifurcation, repeat flow measurement in the PT prox. to the PT bifurcation	3 min
4. Flow measurements: Breath-holds 1 x PC-Flow in RPA/LPA (1-2 mm in-plane, slice thickness 6 mm, 30ms, about 1 cm form bifurcation) 1 x PC-flow in PT Reconstructed phases: 40 1 x PC-Flow Asc Ao (level of the RPA) axial orientation: high temp res. (for PWV) Avoid extensive wrap-around artifacts that would compromise background phase-offset correction. Acquire flow data with the target vessel in the isocentre of the magnet (to reduce background phase offsets). It is to the discretion of the center to acquire phantom flow measurements (at the end of the study) for more precise background phase off-set correction.	6 min
5. T_1 mapping at basal and mid-ventricular level (to plan on 3-chamber RV view) Breath-hold, spatial resolution: 2-3 mm in-plane, slice thickness 8 mm Siemens (Molli), Philips, GE with pre-contrast 3(3)3(3)5 scheme (for Molli)	3 min
6. Angio during breath-hold (to assess venous return, baffles, and aortic arch length etc) during contrast medium injection (0.2mmol/kg body weight). Spatial resolution: ≤1.5×≤1.5 in plane ×≤2.0mm	5 min
7. 15 min waiting time (sequences to run in addition at the discretion of the center)	15 min
8. LGE acquisition in short-axis and long-axis views of RV and LV (PSIR recon) Breath-hold, spatial resolution (1.3–1.7 mm, slice thickness/gap: 8/0mm)	12 min
9. T_1 mapping at basal and mid-ventricular level (same orientations as in point 4) Breath-hold, spatial resolution: 2-3 mm in-plane, slice thickness 8 mm. As for point 5, but with short-T_1 scheme for post-contrast of 4(1)3(1)2 (for Molli)	1 min
Total imaging time	**~60 min**

J. Schwitter (swissCVIcorelab, CHUV)