Echocardiographic measurements of the heart
With focus on the right ventricle

av

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Akademisk avhandling

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Echocardiography is a well established technique when evaluating the size and function of the heart. One of the most common ways to measure the size of the right ventricle (RV) is to measure the RV outflow tract 1 (RVOT1). Several ways to measure RVOT1 are described in the literature. These ways were compared with echocardiography on 27 healthy subjects. The result showed significant differences in RVOT1, depending on the way it was measured, concluding that the same site, method and body position should be used when comparing RVOT1 in the same subject over time.

One parameter to evaluate the RV diastolic function (RVDF) is to measure the RV isovolumetric relaxation time (RV-IVRT), a sensitive marker of RV dysfunction. There are different ways to measure this. In this thesis two ways of measuring RV-IVRT and their time intervals were compared in 20 patients examined with echocardiography. There was a significant difference between the two methods indicating that they are not measuring the same interval.

Another way to assess the RVDF is to measure the maximal early diastolic velocity (MDV) in the long-axis direction. MDV can be measured by different methods, hence 29 patients were examined and MDV was measured according to two methods. There was a good correlation but a poor agreement between the two methods meaning that reference values cannot be used interchangeably.

Takotsubo cardiomyopathy is characterized by apical wall motion abnormalities without coronary stenosis. The pathology of this condition remains unclear. To evaluate biventricular changes in systolic long-axis function and diastolic parameters in the acute phase and after recovery, 13 patients were included and examined with echocardiography at admission and after recovery. The results showed significant biventricular improvement of systolic long-axis function while most diastolic parameters remained unchanged.

**Keywords:** Echocardiography, heart, right ventricle, right ventricular outflow tract 1, isovolumetric relaxation time, maximal early diastolic relaxation velocity, takotsubo cardiomyopathy, long-axis function

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