# Advanced clinical applications of cardiac computed tomography and novel echocardiographic modalities

Yiu, K.H.

**STELLINGEN**

Behorend bij het proefschrijft

# Advanced clinical applications of cardiac computed tomography and novel echocardiographic modalities

1. Advanced cardiac imaging modalities play a crucial role in the diagnostic process and clinical management of patients with different cardiac diseases, including coronary artery disease, valvular heart disease, inherited cardiomyopathy and systemic disorders with cardiac involvement. (this thesis)
2. Novel echocardiographic techniques allow detailed evaluation of myocardial function and structural characteristics beyond conventional techniques. The use of 2D speckle tracking strain analysis allows a sensitive identification of subtle both regional and global myocardial dysfunction. (this thesis)
3. Ultrasonic techniques, namely calibrated integrated backscatter, are sensitive to anisotropic myocardial architecture, such as myocardial disarray (myocytes arranged at oblique and perpendicular angles to each other). (this thesis)
4. The presence of severe aortic stenosis does not result in a significant change in aortic annular dimensions and geometry. However, aortic annular diameter is significantly increased in severe AS patients with associated LV dysfunction. (this thesis)
5. The quantification of cardiac chamber size and function is the cornerstone of cardiac imaging, with echocardiography being the most commonly used noninvasive modality because of its unique ability to provide real-time images of the beating heart, combined with its availability and portability. (Lang R. et al, J Am Soc Echocardiogr 2015;28:1-39.)
6. Finally, appreciation of the LV intracavitary vortex motion and studying its interaction with myocardial deformations may open a new era of exploring the mechanical efficiency of cardiac contractions. (Claus P. et al, JACC Cardiovasc Imaging. 2015;8:1444-60)
7. In the past, the importance of right ventricular function has been underestimated. Indeed, RV dysfunction is an important predictor of survival and exercise capacity in cardiopulmonary disease. (Haddad F. et al, Circulation. 2008;117:1436-48)
8. Coronary computed tomography angiography and coronary artery calcium scoring offer the ability to improve risk stratification, discrimination, and reclassification of the risk in patients with suspected coronary artery disease and to noninvasively determine the measures of stenosis severity and atherosclerotic plaque features. (Kalra DK. Et al, Arterioscler Thromb Vasc Biol. 2014;34:1144-54)
9. Great minds discuss ideas; Average minds discuss events; Small minds discuss people. (Eleanor Roosevelt 1884-1962)
10. There are three classes of people: those who see, those who see when they are shown, those who do not see. (Leonoardo da Vinci 1452-1519)