

Cardiovascular Diseases Therapeutic Technique Research Group

Major Research Goals

Our research consortium mainly focuses on advanced new technology for the diagnosis and treatment of cardiovascular disorders, nuclear medicine, rehabilitation medicine, and psychiatry. The cardiology group's aim is to develop new drug-eluting coronary artery stents and cell-based therapy for ischemic heart failure using stem cell technology. The nuclear medicine group is developing new diagnostic nuclear imaging methods such as myocardial perfusion scans and positron emission tomography for the optimal diagnosis of ischemic heart disease and heart failure. The rehabilitation medicine group is studying the impact of cardiac rehabilitation and the psychiatry group is investigating the factors associated with depressive disorders that occur after acute coronary syndrome.

Major Research Topics

1. Development of a new drug-eluting stent with high functionality to treat cardiovascular diseases.
2. Development of advanced imaging techniques for cardiovascular diseases.

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3. Development of molecular therapeutic drugs for cardiovascular diseases.
4. Improvement of prognosis for cardiovascular diseases through psychotherapy.
5. The effect of cardiac rehabilitation on acute myocardial infarction.

Major achievements

1. Development and release of CNUH stent(Tiger stent).
2. Establishment of a chronic total occlusion animal model.
3. Development of an optimized dual-layer stent(alpha-lipoic acid plus sirolimus).
4. Establishment of a NOGA cardiac navigation system in a myocardial infarction pig model.
5. Prediction of ischaemic stroke in cancer patients using ^{18}F -FDG PET/CT imaging factors.
6. Discovery of the necessity of cardiac rehabilitation for recovery of heart function.
7. Discovery of the usefulness of Lower Body Positive Pressure Supported(LBPPS) treadmill for patients who cannot walk.

8. Assessment of socio-demographic and clinical condition evaluation in chronic depression.
9. Assessment of biological risk factors in depression status.

Representative Figures for Major Achievements



Fig. 1. Tiger stent.



Fig. 2. Exercise tolerance test using a Lower Body Positive Pressure Supported(LBPPS) treadmill.

Major Relevant Publications

1. Sim DS, Jeong MH et al., A novel polymer-free drug-eluting stent coated with everolimus using nitrogen-doped titanium dioxide film deposition in a porcine coronary restenosis model. *Int J Cardiol* 2016, 222: 436-440
2. Park KH, Jeong MH et al., Comparison of short-

term clinical outcomes between ticagrelor versus clopidogrel in patients with acute myocardial infarction undergoing successful revascularization; from Korea Acute Myocardial Infarction Registry-National Institute of Health. *Int J Cardiol* 2016, 215:193-200

3. Shin HY, Kang G et al., Relationships between high-density lipoprotein cholesterol and depressive symptoms: Findings of the Korean National Health and Nutrition Examination Survey(KNHANES). *Psychiatry Res* 2016, 241:172-174
4. Kang HJ, Stewart R. et al., Predictive value of homocysteine for depression after acute coronary syndrome. *Oncotarget* 2016, 7:69032-69040
5. Kang HJ, Bae KY et al., Effects of interleukin-6, interleukin-18, and statin use, evaluated at acute stroke, on post-stroke depression during 1-year follow-up. *Psychoneuroendocrinology* 2016, 72:156-160

Major Networks

