Cardiovascular Medicine

1. Staffs and Students (April, 2009)

**Professor**
Mitsuaki Isobe

**Associate Professor**
Kenzo Hirao

**Junior Associate Professor**
Hitoshi Hachiya

**Assistant Professor**
Mihoko Kawabata, Hiroshi Inagaki, Go Haraguchi, Takeshi Sasaki, Shunji Yoshikawa, Ryoko Azuma

**Graduate Student**
Kino Futamatsu, Takanobu Yamamoto, Takashi Ishihara, Masanori Konishi, Hirokazu Ohgashi, Seiji Matsubara, Yasutoshi Nagata, Kengo Tanabe, Masatoshi Komura, Manabu Kurabayashi, Ayumi Goda, Daisuke Tezuka, Yoshishide Takahashi, Takeshi Sasaki, Masakazu Ohno, Koji Higuchi, Kamimura Munehiro, Sasaoka Taro, Tatsuya Hayashi, Masaaki Shoji, Shingo Maeda, Kiyoshi Ohtomo, Tetsuo Kamiishi, Masahiko Setoguchi, Susumu Tao, Tomoko Manno, Hiroshi Kawata

2. Education

We are dealing with pathophysiology of circulatory system especially cardiovascular diseases. Cardiovascular diseases are principal cause of death in our country. These diseases are categorized into several fields. They include ischemic heart disease, myocardial disease, valvular disease, atherosclerosis, arrhythmia, and infectious disease. The common final figure of these diseases is heart failure leading to patients' death. Based on recent progresses in molecular biology and bioengineering our knowledge on the pathophysiology of these diseases has been expanded rapidly. There are variety of new diagnostic technologies including imaging tests, hematological tests and electrophysiological tests. In addition, development in the treatment of cardiovascular disease is overwhelming. They include intravascular catheter intervention, catheter ablation and operation. Medical treatment has also been progressed rapidly. Further, gene therapy for cardiovascular diseases has started. All of these fields are our focus for education. In this course, students learn about modern knowledge and technologies in cardiovascular diseases, especially in the field of pathophysiology, diagnosis, treatment and prevention.

3. Research Subjects

The purposes of our investigation are to reveal the etiology and pathophysiology of cardiovascular diseases, and to develop new technologies for diagnosis and treatment. For that purpose we investigate clinical cases and model animals. Currently our investigations are focused on arteriosclerosis, atherosclerosis, cardiomyopathy, myocarditis, arrhythmias, cardiac rejection and heart failure. The relationship between gene mutation and cardiovascular disease, electrophysiology, myocardial cell transplantation and myocardial regeneration are also our major subjects of research.

1) Clinical study of gene therapy for coronary artery disease (Isobe)
2) Clinical study for treatment of acute coronary syndrome (Isobe, Inagaki, Kimura)
3) Molecular mechanism and treatment of myocardial ischemia and reperfusion injury (Isobe, Haraguchi)
4) Molecular mechanism and treatment of coronary restenosis and vascular disease (Isobe)
5) Gene therapy of myocarditis and cardiac chronic rejection (Isobe, Suzuki)
6) Cardiac rejection and immunological tolerance (development of safe immunosuppressive therapy) (Isobe, Suzuki)
7) Treatment of heart failure and cardiomyopathy by myocardial regeneration (Isobe, Suzuki)
8) Regulation of arteriosclerosis by targeting transcription factors (Isobe)
9) Gene therapy of vascular disease (Isobe)
10) Diagnostic imaging of aortitis (Isobe)
11) Molecular mechanism and treatment of aortitis (Isobe)
12) Assessment of vascular endothelial dysfunction in vasculitis, heart failure and arrhythmia (Isobe)
13) Application in gene therapy for heart failure and cardiomyopathy (Isobe)
14) Molecular system of myocardial remodeling in heart failure and ventricular hypertrophy (Isobe)
15) Therapy of sleep apnea syndrome with heart failure (Isobe)
16) Assessment by imaging of coronary artery and cardiac function (Isobe Tezuka)
17) System of origin with tachyarrhythmias (particularly supraventricular tachycardia) (Hirao)
18) Medical therapy and ablation for tachyarrhythmias (Hirao)
19) Research for the conduction of atrio-ventricular node (Hirao)
20) Research and Therapy for arrhythmia by using Cardioendoscope (Hirao)
21) Research of atrial fibrillation from origin of pulmonary vein (Hirao)
22) Research of genetic factor with atrial fibrillation (Hirao)
23) Research of ablation for atrial fibrillation (Hirao Hachiya)

We conduct collaborative researches with not only Medical Research Institute and other facilities in our university but also domestic and foreign institutes according to research projects. Since clinical cases in our hospital are diverse and abundant, clinical investigations are also our major target. Therefore, we can provide many research projects depending on students' need. We encourage and help students to pursue their own original way of investigation.

4. Clinical Services
Students are also encouraged to learn about clinical cardiology. They can participate in any clinical activities undergone in our hospital including cardiac catheterization, electrophysiological study, catheter ablation, various imaging tests, cardiac pathology, and patients care.

5. Publications
Original Article


Review Article


Book

