

Department of Anesthesiology

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General Summary

The functions of the Department of Anesthesiology are to provide quality patient care, to teach, and to perform research in perioperative medicine, intensive care medicine, and comprehensive pain management. In 2014 we made further advances and great achievements with the support of our faculty, institutional administration, and the Dean of The Jikei University. Below we highlight some of our research achievements in 2014.

Research Activities

Research continues as a growing and important component of the department's activities. The department is committed to enhancing academic productivity and resources by dedicating time to research and granting clinical access to research cases.

The investigators have been successful each year in obtaining peer-reviewed research grants, such as Grants-in-Aid for Scientific Research (*kakenhi*) and contract grants. The department continues to build on the strengths of several outstanding programs: cardiovascular anesthesia, thoracic anesthesia, pediatric anesthesia, regional anesthesia, neuro-anesthesia, obstetric anesthesia, intensive care medicine, and comprehensive pain management. Faculty recruitment is targeted at individuals with demonstrated academic and research activities as well as excellent clinical management and teaching skills.

In 2014 Dr. Tsubokawa and Dr. Fujii were recruited to renew cardiac anesthesia program with an emphasis on intraoperative transesophageal echocardiography. Their expertise on this technology will allow us to improve the quality of cardiac surgery, leading to better cardiac patient outcomes.

Our faculty and residents were both well represented at the Japanese Society of Anesthesiologists' annual meeting in Kobe and the American Society of Anesthesiologists' annual meeting in New Orleans. In addition, members of the department continue to be invited as visiting professors or guest speakers at national and international meetings.

Listed below are some of the ongoing research projects in which the principal investigators are faculty members of the Department of Anesthesiology.

Doctor Uezono and his colleagues have been investigating the effects of neuromuscular blocking agents on the central nervous system. Doctor Mio's research has been focused on the effect of mitochondria on major organ preservation. He found protective effects of

volatile anesthetic agents on mitochondria in renal cells. Doctor Shimoyama has been working to elucidate the mechanism of chemical induced neuropathic pain, which will lead to therapeutic options being developed for this type of pain.

In clinical medicine, several principal investigators from the Department of Anesthesiology deserve mention. Doctor Kondoh has been interested in the concept of goal directed therapy and its application to fluid management during surgery for cancers of the head and neck. Doctor Uchino continues to be active in clinical research in the intensive care unit and has been extremely productive in the field of acute kidney injury. Using a large database in the intensive care unit, Dr. Kobayashi and his colleagues have been attempting to identify predictive factors affecting outcomes associated with artificial ventilatory therapy. Our pain clinic physicians led by Dr. Kitahara continue to play a pivotal role in establishing practice guidelines for patients with various types of chronic pain. One of their targets is postmastectomy pain.

The appended bibliography of the department shows that a wide range of investigative and scholarly activities were conducted over the past year.

Publications

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- Arii T, Uchino S, Kubo Y, Kiyama S, Uezono S.** Radiation exposure to anaesthetists during endovascular procedures. *Anaesthesia.* 2015; **70**: 47-50.
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- Kida K, Shirozu K, Yu B, Mandeville JB, Bloch KD, Ichinose F.** Beneficial effects of nitric oxide on outcomes after cardiac arrest and cardiopulmonary resuscitation in hypothermia-treated mice. *Anesthesiology.* 2014; **120**: 880-9.
- Yokobe J, Kitahara M, Matsushima M, Uezono S.** Preference for different anchor descriptors on visual analogue scales among Japanese patients with chronic pain. *PLoS One.* 2014; **9**: e99891.
- Kida K, Ichinose F.** Preventing ischemic brain injury after sudden cardiac arrest using NO inhalation. *Crit Care.* 2014; **18**: 212.

Reviews and Books

Kobirumaki-Shimozawa F, Inoue T, Shintani SA, Oyama K, Terui T, Minamisawa S, Ishiwata S, Fukuda N. Cardiac thin filament regula-

tion and the Frank-Starling mechanism. *J Physiol Sci.* 2014; **64**: 221-32.

Mio Y, Uezono S, Kitahara H. Anesthetic cardioprotection in relation to mitochondria: basic science. *Curr Pharm Des.* 2014; **20**: 5673-80.