

Department of Anesthesiology

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General Summary

The 2010 academic year is the sixth year that the Department of Anesthesiology has been directed by Chairman Professor Shoichi Uezono, M.D. 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 2010 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 2010.

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, neuroanesthesia, obstetric anesthesia, intensive care medicine, and comprehensive pain management. Faculty recruitment is targeted at individuals with demonstrated academic and research productivity as well as excellent clinical management and teaching skills. In 2010, the department was able to invite Dr. Sanui from Jichi Medical College as an associate professor. Dr. Sanui is a nationally and internationally recognized expert in intensive care medicine and an excellent teacher of perioperative critical care. Dr. Sunaga successfully finished his 2-year research fellowship at Cornell University in the United States and re-joined our faculty. The Japanese Society of Anesthesiologists' annual meeting in Fukuoka and the American Society of Anesthesiologists' annual meeting in San Diego were both well represented by our faculty and residents.

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

Dr. Uezono's research focus has been pulmonary vascular physiology and its clinical application to children with single ventricular physiology. Dr. Omi is interested in the

development of simulation tools to learn how to deliver peripheral nerve blocks. Dr. Taniguchi has been interested in temperature regulation during surgery and its effects on postoperative outcomes in patients undergoing head and neck surgery. Dr. Kiyama examined the effects of propofol on the bispectral index in elderly patients and determined the optimal dose of propofol in this population. Members of the intensive care medicine staff (Drs. Takinami, Sanui, Uchino, and Kase) have remained extremely active in clinical research on the following topics: (1) the usefulness of criteria for acute disseminated intravascular coagulation to predict outcomes in patients admitted to the intensive care unit, (2) blood levels of vitamin D and genetic polymorphism of vitamin D receptors in patients after cardiac surgery, and (3) the efficacy of sivelestat in sepsis-induced acute lung injury. Dr. Kitahara and his colleagues in the Pain Clinic continue their efforts to establish standards of objective pain assessment. He is also assessing the effects of tramadol on various types of chronic pain. Dr. Kojima has been an active member of a national cancer research council on postmastectomy pain syndrome.

Basic science investigations included studies of gene therapy for experimental pulmonary hypertension (Dr. Uezono), studies of the effects of long-term administration of morphine on granuloma formation in the spinal cord (Dr. Kondo), mechanisms of anesthetic post-conditioning in myocardial mitochondria (Dr. Mio), and the effects of donepezil on the pharmacokinetics of neuromuscular blocking agents (Dr. Sunaga). A total of 5 Grants-in-Aid for Scientific Research (*Kakenhi*) were obtained in 2010.

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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Bienengraeber M. Monitoring mitochondrial electron fluxes using NAD(P)H-flavoprotein fluorometry reveals complex action of isoflurane on cardiomyocytes. *Biochim Biophys Acta* 2010; **1797**: 1749-58.

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Reviews and Books

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Uchino S. What is 'BEST' RRT practice? *Contrib Nephrol* 2010; **165**: 244-50.

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