

Department of Anesthesiology

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General Summary

The 2009 academic year is the fifth year that the Department of Anesthesiology was lead by Professor Shoichi Uezono. The functions of the Department of Anesthesiology are innovative quality of patient care, teaching, and research of perioperative medicine, intensive care medicine, and comprehensive pain management. In 2009 we advanced further and achieved much with support from our faculty, the institutional administration, and the dean of The Jikei University. Below we highlight some of our research achievements in 2009.

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, including protected time and clinical access to research cases. Our investigators have been successful each year in obtaining peer-reviewed research grants, such as Grants-in-Aid for Scientific Research and contract grants. The department continues to build on the strengths of several outstanding programs: vascular anesthesia, pediatric anesthesia, regional anesthesia, neuroanesthesia, 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. In 2009, the department was able to invite Dr. Shuya Kiyama from Keio University as an associate professor. Dr. Kiyama is a nationally and internationally recognized expert in clinical pharmacology and an excellent teacher of total intravenous anesthesia.

Our faculty and residents were well represented at both the Japanese Society of Anesthesiologists annual meeting in Kobe and the American Society of Anesthesiologists annual meeting in New Orleans, LA.

Highlighted are the ongoing research projects for which the principal investigators are faculty members of the Department of Anesthesiology

Dr. Uezono's research focus has been pulmonary vascular physiology and its clinical application for children with single ventricular physiology. Dr. Omi is interested in the development of simulation tools for learning peripheral nerve blocks. Dr. Taniguchi has been interested in temperature regulation during surgery and its effects on postoper-

ative outcomes in patients undergoing head and neck surgery. Dr. Fujiwara and her colleagues examined the usefulness of the pleth variability index, an index automatically derived from pulse oximeter waveform analysis, to optimize perioperative fluid status. Specialists in intensive care medicine (Drs. Takinami, Uchino, and Kase) have remained active in clinical research including: 1) an outcome study of patients who have undergone tracheostomy in the intensive care unit; 2) an international observational study of patients in the intensive care unit who have sustained acute kidney injury; 3) risk factor analysis of postoperative acute kidney injury in patients with severe intraoperative bleeding; 4) a study of the use of citrate as an anticoagulant during hemodialysis; and 5) a multicenter study of polymyxin b affinity columns in patients with sepsis. Dr. Kitahara and his colleagues in the Pain Clinic have continued their efforts to establish gold standards for the objective assessment of pain. He is also assessing the effect of tramadol on various types of chronic pain. Dr. Kojima has been an active member of the 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 various anesthetics on the release of substance P at the spinal dorsal horn after tissue injury (Dr. Kondo), the development of a new technologies for measuring endotoxin (Dr. Kase), mechanisms of anesthetic preconditioning in myocardial mitochondria (Dr. Mio), and mechanisms of anesthesia-induced neural excitation (Dr. Yasui). Grants-in-Aid for Scientific Research were successfully renewed during the past year by Drs. Uezono and Yasui. Dr. Mio was awarded a new 3-year Grant-in-Aid.

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

Publications

Liu YL, Prowle J, Licari E, Uchino S, Bellomo R. Changes in blood pressure before the development of nosocomial acute kidney injury. *Nephrol Dial Transplant* 2009; **24**: 504-11.

Hirabayashi M, Fujiwara C, Ohtani N, Kagawa S, Kamide M. Transcutaneous PCO2 monitors are more accurate than end-tidal PCO2 monitors. *J Anesthesia* 2009; **23**: 198-202.

Uchino S, Bellomo R, Morimatsu H, Morgera S, Schetz M, Tan I, Bouman C, Macedo E, Gibney N, Tolwani A, Straaten HO, Ronco C, Kellum JA. Discontinuation of continuous renal replacement therapy: a post hoc analysis of a prospective multicenter observational study. *Crit Care Med* 2009; **37**: 2576-82.

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comparison of observed versus estimated baseline creatinine for determination of RIFLE class in patients with acute kidney injury. *Nephrol Dial Transplant* 2009; **24**: 2739-44.

Bellomo R, Morimatsu H, Presneill J, French C, Cole L, Story D, Uchino S, Naka T, Finfer S, Cooper DJ, Myburgh J; The SAFE Study Investigators and the Australian and New Zealand Intensive Care Society Clinical Trials Group. Effects of saline or albumin resuscitation on standard coagulation tests. *Crit Care Resuscitation* 2009; **11**: 250-6.

Reviews and Books

Uchino S, Claudio Ronco. Continuous renal replacement therapies. In: Jrras A, Ronco C, Kellum JA, editors. *Management of Acute Kidney Problems*. Berlin: Springer; 2009. p.525-36.