

Department of Anesthesiology

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General Summary

The 2008 academic year is the fourth year that the Department of Anesthesiology has been under the leadership of Professor Shoichi Uezono. The functions of the Department of Anesthesiology are innovative, high-quality patient care; teaching; and research into perioperative medicine, intensive care medicine, and comprehensive pain management. In the past year we made progress and accomplished much with the support of our faculty, the institutional administration, and the Dean of The Jikei University. Below we highlight some of our research achievements of the past year.

Research Activities

Research continues as an increasingly important part of our department's activities. This past year the department had 11 active clinical protocols. As another index of research activity, 12 abstracts were accepted for presentation at this year's meeting of the Japanese Society of Anesthesiologists. In addition, several abstracts were accepted and presented at international meetings, including highly competitive meetings, such as the annual meeting of the American Society of Anesthesiologists. Members of our department have continued to be invited as visiting professors and guest speakers at national and international meetings. Listed below are the ongoing research projects in which the principal investigators were members of the Department of Anesthesiology.

Clinical studies were performed in all areas of the department, including the main operating room, the intensive care unit (ICU), and the comprehensive pain clinic. These clinical studies included a wide variety of investigative efforts. 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. Dr. Shoji's group continued to study whether postoperative use of dexmedetomidine infusion enhances epidural pain medication. Dr. Hirabayashi examined whether herbal medicine administered the night before surgery reduces preoperative anxiety. Dr. Shibasaki assessed the usefulness of 3 mL of 2% lidocaine as a test dose in epidural anesthesia. Dr. Taniguchi has been interested in temperature regulation during surgery and its effects on postoperative outcomes in patients undergoing head and neck surgery. Dr. Uezono has been an active investigator of the mechanisms of difficult airway in children, particularly the association between micrognathia and neural crest cells. The ICU staff remain active in clinical research including: 1) the study of

outcomes of ICU patients who have undergone tracheostomy (Dr. Kase); 2) international observational study of acute kidney injury in ICU patients (Dr. Uchino); 3) analysis of risk factors for acute postoperative kidney injury in patients with massive intraoperative bleeding (Dr. Uchino); 4) application of citrate as an anticoagulant during hemodialysis (Dr. Uchino); and 5) multicenter study of hemoperfusion with a polymyxin B fiber column in patients with sepsis (Dr. Kase). Physicians in the pain clinic are also involved in clinical research. Dr. Kitahara continued his efforts to establish gold standards of objective pain assessment. 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. Some of these clinical studies received grants from sponsoring companies.

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 in the dorsal horn of the spinal cord after tissue injury (Dr. Kondo), the development of new methods of endotoxin measurement (Dr. Kase), mechanisms of anesthetic postconditioning in myocardial mitochondria (Dr. Mio), and mechanisms of anesthesia-induced neural excitation (Dr. Yasui). A Grant-in-aid for Scientific Research (*kakenhi*) was successfully renewed during the past year for Dr. Uezono, and Dr. Yasui was awarded a new Grant-in-aid for Young Investigators.

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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Reviews and Books

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Uchino S. Kidney-specific severity scores. In: Ronco C, Bellomo R, Kellum J, editors. *Critical Care Nephrology*. Philadelphia: Saunders Elsevier; 2009. p. 60-5.

Uchino S. Beginning and ending continuous therapies in the intensive care unit. In: Ronco C, Bellomo R, Kellum J, editors. *Critical Care Nephrology*. Philadelphia: Saunders Elsevier; 2009. p. 1332-5.