

## 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 2012 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 2012.

### 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 2012, the department was able to invite Naohito Shimoyama, M.D., from Tokyo Medical College as a full professor. Dr. Shimoyama is a nationally recognized expert in palliative medicine. He is expected to develop comprehensive palliative care for cancer patients, a first for The Jikei University, in close collaboration with our existing outpatient pain clinic and acute pain service. Our faculty and residents were both well represented at the Japanese Society of Anesthesiologists' annual meeting in Sapporo and at the American Society of Anesthesiologists' annual meeting in Washington, D.C. In addition, members of the department continue to be invited as visiting professors or guest speakers at national and international meetings. Listed below are the ongoing research projects in which the principal investigators are faculty members of the Department of Anesthesiology.

Doctor Hidano's research focus has been on searching for preoperative factors to predict intraoperative and postoperative deep vein thrombosis in surgical patients. This study will help us identify patients at high risk for postoperative pulmonary emboli, which can

sometimes be fatal. Doctor Taniguchi has been interested in temperature regulation during surgery and its effects on postoperative outcomes, such as shivering. 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. Our pain clinic physicians continue to play a pivotal role in establishing practice guidelines for patients with neuropathic pain. Their particular interest has been postmastectomy pain.

Basic science investigations included studies of the effects of neuromuscular blocking agents on the central nervous system (Dr. Uezono), studies of the effects of sustained release of intrathecal morphine (Dr. Kondo), mechanisms of anesthetic postconditioning in renal mitochondria (Dr. Mio), *in-vivo* nanoimaging techniques in cardiac disease (Dr. Terui), and the mechanisms of the effects of valproic acid on the treatment of chronic pain (Dr. Hobo). The appended bibliography of the department shows a wide range of investigative and scholarly activities over the past year.

## Publications

**Kojima KY, Kitahara M, Matoba M (Nat Cancer Ctr), Shimoyama N, Uezono S.** Survey on recognition of post-mastectomy pain syndrome by breast specialist physician and present status of treatment in Japan. *Breast Cancer*. 2012 May 30. Epub ahead of print.

**Shimoyama M<sup>1</sup>, Schiller PW<sup>2</sup>, Shimoyama N, Toyama S<sup>1</sup>, Szeto HH<sup>3</sup> (Teikyo Univ, <sup>2</sup>McGill Univ, <sup>3</sup>Cornell Univ).** Superior analgesic effect of H-Dmt-D-Arg-Phe-Lys-NH<sub>2</sub> ([Dmt1]DALDA), a multifunctional opioid peptide, compared to morphine in a rat model of neuropathic pain. *Chem Biol Drug Des*. 2012; **80**: 771-4.

**Ootaki C<sup>1</sup>, Stevens T<sup>1</sup>, Vargo J<sup>1</sup>, You J<sup>1</sup>, Shiba A<sup>1</sup>, Foss J<sup>1</sup>, Borkowski R<sup>1</sup>, Maurer W<sup>1</sup> (Anesthesiol Inst Cleveland Clin).** Does general anesthesia increase the diagnostic yield of endoscopic ultrasound-guided fine needle aspiration of pancreatic masses? *Anesthesiology*. 2012; **117**: 1044-50.

**Hayashida K<sup>1</sup>, Kimura M<sup>2</sup>, Yoshizumi M<sup>1</sup>, Hobo S, Obata H<sup>2</sup>, Eisenach JC<sup>1</sup> (Wake Forest Univ, <sup>2</sup>Gunma Univ).** Ondansetron reverses antihypersensitivity from clonidine in rats after peripheral nerve injury: role of  $\gamma$ -aminobutyric acid in  $\alpha$ 2-adrenoceptor and 5-HT<sub>3</sub> serotonin receptor analgesia. *Anesthesiology*. 2012; **117**: 389-98.

**Endo A, Uchino S, Iwai K, Saito K, Sanui M, Takinami M, Uezono S.** Intraoperative hydroxyethyl starch 70/0.5 is not related to acute kidney injury in surgical patients: retrospective cohort study. *Anesth Analg*. 2012; **115**: 1309-14.

**Uchino S, Bellomo R<sup>1</sup>, Goldsmith D<sup>1</sup> (Austin hosp).** The meaning of the blood urea nitrogen/creatinine ratio in acute kidney injury. *Clin Kidney J*. 2012; **5**: 187-91.

**Fujii T<sup>1</sup>, Namba Y<sup>1</sup>, Fujitani S<sup>1</sup>, Sasaki J<sup>1</sup>, Narihara K<sup>1</sup>, Shibagaki Y<sup>1</sup>, Uchino S, Taira Y<sup>1</sup> (St. Marianna Univ Sch Med).** Low-dose continu-

ous renal replacement therapy for acute kidney injury. *Int J Artif Organs*. 2012; **35**: 525-30.

**Saito S, Sanui M, Fujii T, Endo A, Saito K, Iwai K, Uchino S, Takinami M.** Bronchiolitis obliterans presenting as prolonged ventilator dependence in a patient with paraneoplastic pemphigus. *Anaesth Intensive Care*. 2012; **40**: 726-8.

**Zhou W<sup>1</sup>, Ko Y<sup>1</sup>, Benharash P<sup>1</sup>, Yamakawa K<sup>1</sup>, Patel S<sup>1</sup>, Ajjola OA<sup>1</sup>, Mahajan A<sup>1</sup> (UCLA).** Cardioprotection of electroacupuncture against myocardial ischemia-reperfusion injury by modulation of cardiac norepinephrine release. *Am J Physiol Heart Circ Physiol*. 2012; **302**: H1818-25.

**Ajjola OA<sup>1</sup>, Vaseghi M<sup>1</sup>, Zhou W<sup>1</sup>, Yamakawa K<sup>1</sup>, Benharash P<sup>1</sup>, Hadaya J<sup>1</sup>, Lux RL<sup>1</sup>, Mahajan A<sup>1</sup>, Shivkumar K<sup>1</sup> (UCLA).** Functional differences between junctional and extrajunctional adrenergic receptor activation in mammalian ventricle. *Am J Physiol Heart Circ Physiol*. 2013; **304**: H579-88.

**Zhou W<sup>1</sup>, Yamakawa K<sup>1</sup>, Benharash P<sup>1</sup>, Ajjola O<sup>1</sup>, Ennis D<sup>1</sup>, Hadaya J<sup>1</sup>, Vaseghi M<sup>1</sup>, Shivkumar K<sup>1</sup>, Mahajan A<sup>1</sup> (UCLA).** Effect of stellate ganglia stimulation on global and regional left ventricular function as assessed by speckle tracking echocardiography. *Am J Physiol Heart Circ Physiol*. 2013; **304**: H840-7.

**Yamakawa K, Kiyama S, Murayama Y, Uezono S.** Incidence and neurological outcomes of aneurysm rupture during interventional neuroradiology procedures in a hybrid operating suite. *J Anesth*. 2012; **26**: 592-4.

## Reviews and Books

**Matsumoto T.** Implementation of SPLINTS in healthcare practice: an application of instructional systems design. (in Japanese). *Iryo no Shitsu Anzen Gakkaishi*. 2012; **7**: 404-9.