

Department of Anesthesiology

Shoichi Uezono, *Professor*
Sachiko Omi, *Associate Professor*
Masaki Kitahara, *Assistant Professor*
Ichiro Kondo, *Assistant Professor*
Kazuhiro Shoji, *Assistant Professor*

Takehiko Nezu, *Professor*
Masanori Takinami, *Associate Professor*
Chieko Fujiwara, *Assistant Professor*
Yasushi Mio, *Assistant Professor*

General Summary

The year 2007 was the third academic year that Shoichi Uezono, M.D., served as chairperson of the Department of Anesthesiology. Our department provides a wide spectrum of medical care, from conducting preoperative anesthesia assessment to performing the most advanced life-support techniques in all perioperative settings, such as cardiac surgery, thoracic surgery, vascular surgery, interventional neuroradiology, comprehensive pain management, postanesthesia care unit, and the intensive care unit (ICU). The Department continues to grow in all these areas.

In 2006, Dr. Taniguchi was recruited to lead the clinical anesthesia research program. She was trained as a clinical research fellow in both Europe and the United States. She also has extensive experience in conducting phase II/III drug trials in Japan.

Research Activities

Research continues to grow as an important component of the Department's activities. Research opportunities are available in a variety of areas, including cardiac anesthesia; vascular anesthesia; interventional neuroradiology; pediatric anesthesia; acute and chronic pain management; critical care medicine; and medical informatics. Members of the department continue to be invited as visiting professors and guest lecturers at national and international institutions and meetings.

Below listed are the ongoing research projects in which the principal investigators are members of the Department of Anesthesiology.

Clinical research

1. Drs. Uezono and Hidano have been interested in outcome research in pediatric anesthesia. Their main goal is to determine the prevalence of congenital heart disease in patients with hemifacial microsomia. They hope to determine the role of neural crest cells in the development of the jaw and heart by means of gene analysis in affected individuals.
2. Dr. Shoji and his colleagues continue to search for better methods of managing postoperative pain. They have demonstrated several benefits of epidural patient-controlled analgesia over conventional intravenous drugs.
3. Dr. Kase has developed a new method to detect small amounts of endotoxin which are not detectable with conventional methods. His next effort is to determine whether extremely minute amounts of endotoxin have clinical significance in ICU patients.

4. Dr. Uchino and his colleagues examined, using the large database of ICU patients, the effect of a semiclosed ICU on the outcome of ICU patients. By introducing designated ICU physicians, the outcome data revealed some improvement.
5. Dr. Kitahara and his colleagues in the Pain Clinic have been interested in neuropathic pain after mastectomy for breast cancer. They have found that antidepressant drugs are effective for treating postmastectomy pain. They also serve as members of a committee to establish guidelines for the use of opiates in the treatment of chronic pain.

Basic science research

1. Dr. Uezono has established a pulmonary hypertension laboratory to investigate gene therapy (antisense nucleoside therapy) in experimental pulmonary hypertension. This year his Grant-in-Aid for Scientific Research (Kakenhi) for this research was renewed.
2. Dr. Kondo and his group continue to study the effect of dexmedetomidine on the release of substance P in the spinal dorsal horn after tissue injury. Their results suggest the spinal cord is an important site for alpha 2 agonists to work as pain relievers.

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

Publications

Yasui Y, Masaki E (Tohoku Univ), Kato F. Sevoflurane directly excites locus coeruleus neurons of rats. *Anesthesiology* 2007; **107**: 992-1002.

Uchino S, Bellomo R, Morimatsu H, Morgera S, Schetz M, Tan I, Bouman C, Macedo E, Gibney N, Tolwani A, Oudemans-van Straaten H, Ronco C, Kellum JA. Continuous renal replacement therapy: a worldwide practice survey: The Beginning and Ending Supportive Therapy for the Kidney (B.E.S.T. Kidney) Investigators. *Intensive Care Med* 2007; **33**: 1563-70.

Uchino S, Bellomo R, Kellum JA, Morimatsu H, Morgera S, Schetz MR, Tan I, Bouman C, Macedo E, Gibney N, Tolwani A, Oudemans-Van Straaten HM, Ronco C. Patient and kidney survival by dialysis modality in critically ill patients with acute kidney injury. *Int J Artif Organs* 2007; **30**: 281-9.

Bagshaw SM, Uchino S, Bellomo R, Morimatsu H,

Morgera S, Schetz M, Tan I, Bouman C, Macedo E, Gibney N, Tolwani A, Oudemans-van Straaten HM, Ronco C, Kellum JA, Beginning and Ending Supportive Therapy for the Kidney (BEST Kidney) Investigators. Septic acute kidney injury in critically ill patients: clinical characteristics and outcomes. *Clin J Am Soc Nephrol* 2007; **2**: 431-9.

Haase M, Silvester W, Uchino S, Goldsmith D, Davenport P, Tipping P, Boyce N, Bellomo R. A pilot study of high-adsorption hemofiltration in human septic shock. *Int J Artif Organs* 2007; **30**: 108-17.

Reviews

Uchino S. Choice of therapy and renal recovery. *Crit Care Med* 2008; **36**: 238-42.