

## Department of Anesthesiology

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 Kazuhiro Shoji, *Associate Professor*  
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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 2019 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 2019.

### 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.

Each year the investigators have successfully obtained peer-reviewed research grants. For one thing, Grants-in-Aid for Scientific Research (*kakenhi*) were awarded to 6 members of our faculty in 2019. 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.

Our faculty and residents were both well represented at the annual meetings of the Japanese Society of Anesthesiologists in Kobe and the American Society of Anesthesiologists in Orlando, Florida. In addition, members of the department continue to be invited as visiting professors or guest speakers at national and international meetings.

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

Doctor Ikeda has been investigating the protective effects of sedatives in ischemic encephalopathy. Doctor Kida's research has been focused on the mechanism of spinal cord ischemia during aortic cross clamping, which might lead to new therapeutic interventions, such as inhalational carbon dioxide.

In clinical medicine, several principal investigators from the Department of Anesthesiology deserve mention. Doctor Kondo has been interested in the postoperative pain treatment service. 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. Doctor Abukawa was awarded for creating a new model to practice cricothyroidotomy in an infant. As a new faculty member, Dr. Kurata was recruited to establish an outpatient pain clinic. He has a good track record of publications related to neuroimaging techniques for patients with chronic pain.

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

### Publications

**Sajima T, Momose N, Ishiguro Y.** Feasibility study of a novel method of concentrating fresh frozen plasma by hemoconcentrating filter outside cardiopulmonary bypass. *Perfusion*. 2020 Jun 10: 267659120929171. doi: 10.1177/0267659120929171. [Epub ahead of print] PubMed PMID: 32519614.

**Ishii S, Oyama K, Arai T, Itoh H, Shintani SA, Suzuki M, Kobirumaki-Shimozawa F, Terui T, Fukuda N, Ishiwata S.** Microscopic heat pulses activate cardiac thin filaments. *J Gen Physiol*. 2019 Jun 3; **151**(6): 860-869. doi: 10.1085/jgp.201812243. Epub 2019 Apr 22. PubMed PMID: 31010810; PubMed Central PMCID: PMC6572001.

**Kobirumaki-Shimozawa F, Nakanishi T, Shimozawa T, Terui T, Oyama K, Li J, Louch WE, Ishiwata S, Fukuda N.** Real-Time In Vivo Imaging of Mouse Left Ventricle Reveals Fluctuating Movements of the Inter-calated Discs. *Nanomaterials (Basel)*. 2020 Mar 16; **10**(3). pii: E532. doi: 10.3390/nano10030532. PubMed PMID: 32188039; PubMed Central PMCID: PMC7153594.

**Kakinohana M, Marutani E, Tokuda K, Kida K, Kosugi S, Kasamatsu S, Magliocca A, Ikeda K, Kai S, Sakaguchi M, Hirai S, Xian M, Kaneki M, Ichinose F.** Breathing hydrogen sulfide prevents delayed paraplegia in mice. *Free Radic Biol Med*. 2019 Feb 1; **131**: 243-250. doi: 10.1016/j.freeradbiomed.2018.12.003. Epub 2018 Dec 8. PubMed PMID: 30529602.

**Takaori K, Uchino S, Takinami M.** Impact of point-of-care creatinine monitoring on early detection of acute kidney injury in critical illness. *J Nephrol*. 2019 Dec; **32**(6): 927-935. doi: 10.1007/s40620-019-00641-y. Epub 2019 Sep 11. PubMed PMID: 31512198.

**Yoshida T, Uchino S, Sasabuchi Y, Hagiwara Y; AFTER-ICU study group.** Prognostic impact of sustained new-onset atrial fibrillation in critically ill patients. *Intensive Care Med*. 2020 Jan; **46**(1): 27-35. doi: 10.1007/s00134-019-05822-8. Epub 2019 Nov 4. PubMed PMID: 31686126.

**Irie H, Okamoto H, Uchino S, Endo H, Uchida M, Kawasaki T, Kumasawa J, Tagami T, Shigemitsu H, Hashiba E, Aoki Y, Kurosawa H, Hatakeyama J, Ichihara N, Hashimoto S, Nishimura M; JIPAD Working Group in the Japanese Society of Intensive Care Medicine.** The Japanese Intensive care Patient Database (JIPAD): A national intensive care unit registry in Japan. *J Crit Care*. 2020 Feb; **55**: 86-94. doi: 10.1016/j.jccr.2019.09.004. Epub 2019 Oct 25. PubMed PMID: 31715536.

**Saito K, Uchino S, Fujii T, Saito S, Takinami M, Uezono S.** Effect of low-dose atrial natriuretic peptide in critically ill patients with acute kidney injury: a retrospective, single-center study with propensity-score matching. *BMC Nephrol*. 2020 Jan 30; **21**(1): 31. doi: 10.1186/s12882-020-1701-7. PubMed PMID: 32000705; PubMed Central PMCID: PMC6990464.

**Saito S, Uchino S, Hayakawa M, Yamakawa K, Kudo D, Iizuka Y, Sanui M, Takimoto K, Mayumi T, Sasabuchi Y; Japan Septic Disseminated Intravascular Coagulation (JSEPTIC DIC) study group.** Epidemiology of disseminated intravascular coagulation in sepsis and validation of scoring systems. *J Crit Care*. 2019 Apr; **50**: 23-30. doi: 10.1016/j.jccr.2018.11.009. Epub 2018 Nov 14. PubMed PMID: 30471557.

**Norisue Y, Santanda T, Homma Y, Tomita S, Saito S, Kataoka J, Fujimoto Y, Nabeshima T, Tokuda Y, Fujitani S.** Ultrasonographic Assessment of Passive Cephalic Excursion of Diaphragm During Cough Expiration Predicts Cough Peak Flow in Healthy Adults. *Respir Care*. 2019 Nov; **64**(11): 1371-1376. doi: 10.4187/respcare.06780. Epub 2019 May 21. PubMed PMID: 31113859.