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Start of Joint Research Using Medical Big Data for Treating Broken Bones

Japan System Techniques Co., Ltd. (JAST) has started a joint research project with assistant professor Hiroyuki Okada of the Clinical Biotechnology Department of the Center for Disease Biology and Integrative Medicine of The University of Tokyo Graduate School of Medicine. The project concerns the use of medical big data for the diagnosis and treatment of broken bones. The details are as per attached.

The earnings forecast announced on May 13, 2022 already incorporates the effect of this matter on the results of operations for the fiscal year ending March 2023. An announcement will be made promptly if there is any additional information that should be disclosed.

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■ The Joint Research Program

As Japan's population ages, the number of broken bones due to osteoporosis, including breaks of the femur, is increasing steadily. Furthermore, effective treatments are needed for repeated secondary bone fractures and breaks that follow the initial break due to osteoporosis. However, there is currently an inadequate level of osteoporosis treatments that are essential for preventing secondary fractures and breaks. In Japan, insurance payments for preventing secondary fractures and breaks have finally been raised, but more actions are needed to increase the use of these preventive measures.

Osteoporosis requires treatments involving many fields of medicine, including orthopedics, geriatrics, endocrinology, gynecology and others. Insufficient or improper treatments can cause fractures and breaks. Patients require care that encompasses many fields of medicine but involves mainly orthopedics when there is a fracture or break. Many older people with a broken bone need treatments for internal diseases accompanying the break. In Europe and North America, these individuals often receive treatments by a team of healthcare professionals covering many specialties and led by a physician specializing in geriatrics. In Japan, most older people with broken bones are treated only by an orthopedic physician. As a result, it is often difficult to achieve a sufficient exchange of information between the physician treating osteoporosis and the physician treating the fracture or break.

Ending this problem will require collecting evidence for both increasing the use of osteoporosis treatments and using many medical specialties for the treatment of fractures and breaks. To accomplish this, the separate knowledge and data of osteoporosis physicians and orthopedic physicians must be integrated. The effects of osteoporosis treatments on the progress of the treatment of fractures and breaks need to be identified. In addition, patients in Japan should be managed just as they are in Europe and North America in order to facilitate the seamless teamwork of physicians in many fields of medicine.

For this joint research project, the Future Co-Creation Laboratory of JAST will use medical big data derived from JAST's anonymous health insurance invoice data (see note 1) of approximately 8 million people. By working with Dr. Okada, this information will be used to determine how osteoporosis treatments influence the treatment of femur breaks. Another goal is to devise effective ways to prevent secondary fractures and breaks. This project also has the objective of using the results of this research to help improve the management of osteoporosis worldwide and heighten Japan's position as a leader in the field of medicine.



Dr. Okada conducts research activities using medical big data at JAST's Future Co-Creation Laboratory.

■ The Future Co-Creation Laboratory of JAST

The Future Co-Creation Laboratory of JAST is a medical big data business with the mission of using the digital transformation of health care backed by medical big data (invoice data, health check-up data and other data) to solve issues at healthcare facilities and insurance companies and organizations. This laboratory will continue to analyze information obtained from research activities in order to raise the value of JAST's data and create more ways to solve the issues of customers.

Operations of The Future Co-Creation Laboratory also contribute to accomplishing Sustainable Development Goals number three, good health and well-being, and nine, industry, innovation and infrastructure. These activities include the use of medical big data to enable people to stay healthy and the use of alliances with the academic sector for joint research and the development of products.



■ Profile of Dr. Okada

Hiroyuki Okada (Assistant Professor, Clinical biotechnology, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, The University of Tokyo)

March 2008: B.S., M.D., School of Medicine, Faculty of Medicine, The University of Tokyo

April 2008: Junior Resident Program, Ohta General Hospital and The University of Tokyo Hospital

April 2010: After specialized training at Emergency and Critical Care Medicine Center of Saitama Medical Center and other orthopedics-related hospitals affiliate with The University of Tokyo, entered The University of Tokyo Graduate School of Medicine in April 2016

March 2020: Ph.D., The University of Tokyo Graduate School of Medicine

April 2020: Assistant Professor, Clinical Biotechnology Department, Center for Disease Biology and Integrative Medicine, Graduate School of Medicine, The University of Tokyo

● Professional association memberships

The Japanese Orthopaedic Association, Japanese Association for Acute Medicine, Japanese Society for Fracture Repair, The Japanese Association for The Surgery of Trauma, Japan College of Rheumatology, Japan Osteoporosis Society, The Japanese Society for Bone and Mineral Research, Japanese Society of Osteoimmunology, Japanese Society For Bone Morphometry, The Physiological Society of Japan, The Molecular Biology Society of Japan, ASBMR (American Society for Bone and Mineral Research)



Dr. Okada (middle),
Arai (left), Ichihara (right) (employees of the Future
Co-Creation Laboratory, JAST)

Qualifications

Certified Board Orthopaedic Surgeon, The Japanese Orthopaedic Association
Certified Board Emergency Physician, Japanese Association for Acute Medicine
Clinical Trainer, National Board of Medicine
Certified Member, Japanese College of Infection Control Doctors

Laboratory website: https://gel.tokyo/med/member/member_344.html

ORCID (see note 2): <https://orcid.org/0000-0003-4217-1548>

researchmap (see note 3): https://researchmap.jp/okadahiroyuki_ut

Note 1: Health insurance invoices

When an individual receives a medical treatment covered by insurance, the healthcare institution sends an invoice listing the procedures and amounts due to the insurance company or organization. For medical and dental care, an invoice listing the procedures and amounts due is sent. For pharmacies, an invoice listing the drugs supplied and amounts due is sent. For nurses visiting individuals at home, an invoice listing home nursing care services and amounts due is sent. One invoice for each patient and individual healthcare institution is prepared every month. Invoices contain information about the reasons that individuals received medical care, the cost of the care and other items. JAST converts this information into a database for subsequent utilization.

Note 2: ORCID

Open Researcher and Contributor ID is a research author and contributor identification system that can be used at no cost by research scientists worldwide.

Note 3: researchmap

researchmap is an information sharing infrastructure for researchers that provides a database for the purpose of enabling individuals to manage and provide to others information about their work.

■ Inquiries

The Future Co-Creation Laboratory, Japan System Techniques Co., Ltd.

Contact for more information (redirected to an external website): <https://www.jastlab.jast.jp/contact/>

Website of The Future Co-Creation Laboratory: <https://www.jastlab.jast.jp/>