

Progress report 2015

Department of Medical research and Management for Musculoskeletal pain

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Introduction and the Organizations involved

The department of medical research and the management of musculoskeletal pain was established in 2014 at the 22nd Century Medical and Research Centre thanks to donations from Showa Yakuhin Kako Co., Ltd., and Nippon Zoki Pharmaceutical Co., Ltd., Ono Pharmaceutical Co. Ltd.. The department is a collaboration among the Department of Orthopaedics, the Department of Rehabilitation Medicine, and the Department of Anaesthesiology and Pain Medicine. Currently, our aims are to design an algorithm for diagnosing and treating most types of musculoskeletal pain that do not have established treatment guidelines and to elucidate evidence for the possibility of developing causal therapies.

In the “Comprehensive Survey of Living Conditions” and the “Survey on the Status of Occurrence of Diseases at Work,” which were published by the Health, Labour, and Welfare Ministry, the issues affecting the locomotive apparatus over the years, particularly low back pain and joint pain, have been ranked as the top complaints among citizens and as a cause of absence from work. Additionally, the Global Burden of Diseases Study indicated “low back pain is one of the leading specific causes of years lived with disability (YLD). Musculoskeletal pain, mainly low back pain is an issue with a high complaint rate that causes tremendous social loss on a worldwide scale.

In April 2014, the course on medical research and the management of musculoskeletal pain

was made available to provide more knowledge on highly prevalent musculoskeletal pain and to become a core programme in leading multidisciplinary clinical research.

To achieve these goals, we will closely collaborate with the Department of Orthopaedics, Department of Spinal Surgery, Department of Rehabilitation, and Anaesthesiology and Pain Relief Centre (University of Tokyo Hospital). On the basis of an extensive epidemiological survey, we will identify risk factors that contribute to determining the therapeutic strategy for treating musculoskeletal pain as well as the prognosis. In addition, on the basis of these determined risk factors, we will develop and propose diagnostic tools/algorithms as well as prevention and treatment programmes. Then we will collect and analyse clinical data and systematise the diagnosis, prevention, and treatment of chronic pain – mainly musculoskeletal pain.

Research Activity

In 2014 the first year after the course’s inauguration – we will explore the risk factors that contribute to determining the therapeutic strategy for treating musculoskeletal pain and the prognosis through the following methods:

- 1) Identify risk factors associated with the onset and exacerbation of musculoskeletal pain through an approach that integrates physical and psychosocial factors as well as biomechanics;
- 2) Verify the validity of the standard values of screening tools recommended worldwide for their use in Japan; and

3) Evaluate the brain function of people who are on administrative leave due to low back pain, since this phenomenon is a major social problem. Specifically, we will conduct the following research:

1) Explore the risk factors associated with the onset of low back pain that interferes with work and its conversion to chronicity by using a cohort of about 2,000 persons from four types of occupations (i.e. clerical staff, nurses, sales and marketing associates, and personnel in the transportation industry) and collecting multi-faceted information at baseline;

2) Calculate (on the basis of the prevalence and data from approximately 50,000 people in Japan) the standard values for a screening tool by using a worldwide stratification system that considers psychosocial factors, namely the subgrouping for targeted treatment (STarT) back scoring system, in Japanese subjects. Follow-up surveys at 6 months will be conducted on approximately 2,000 randomly extracted people who have complaints of low back pain, and a weighted psychological validation of the tool will be performed

3) Elucidate the properties of brain functions in patients with back pain disability compared with a control group composed of healthy subjects. In addition, we will clarify the changes due to interventions by using 18 fluoro-2-deoxyglucose positron emission tomography images of the brain taken before and after therapeutic interventions (e.g. exercise and cognitive behavioural therapy, which are highly recommended worldwide) on approximately 15 cases of refractory low back pain that led to a leave of absence from work.

Prospects for future research

We plan to train clinicians with skills in musculoskeletal pain rehabilitation, including specialised exercise therapy and cognitive

behavioural therapy for nonspecific low back pain, which is the most frequent type of musculoskeletal pain. By collaborating with the Department of Nursing, we plan to develop simple tools to prevent low back pain, which will be useful in the clinical settings and for industrial hygiene. Moreover, we plan to verify and diagnose the tools' utility and conduct further research on preventive tools and therapeutic programmes.

Parent Department

Department of Orthopaedic Surgery and Spinal Surgery, Department of Rehabilitation Medicine, and Department of Anesthesiology and Pain relief Center

Corporate Benefactor

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