



## Editorial

## Challenges faced by the Japanese Orthopaedic Association in the treatment and prevention of locomotive organ disorders in the era of “super-ageing”



### 1. Current state of the Japanese Orthopaedic Association

The Japanese Orthopaedic Association (JOA) was founded in 1926. At present (September 1, 2017), the JOA members included a total of 24,769 physicians (regular members: 24,703, resident members: 66). Thus, the JOA is one of the world's largest societies specializing in musculoskeletal disorders.

Orthopaedic surgeons in Japan treat patients with a wide range of diseases, including joint diseases such as osteoarthritis and rheumatoid arthritis, spine and spinal cord disorders such as disc herniation, spinal canal stenosis and ossification of the posterior longitudinal ligament, traumatic injury such as fracture and dislocation, sports-related injury and lesions, bone and soft tissue tumours, and osteoporosis. These diseases entirely correspond to locomotive organ disorders, in which impairment of motor function occurs and the patients cannot stand up, walk, or use their hands smoothly.

In 2012, the JOA conducted a survey on medical care given to 84,544 new patients by Japanese orthopaedic surgeons [1]. The results showed that almost 90% of such medical care was conservative treatment, and 10% surgical treatment. This indicates that for patients who have locomotive organ disorders, Japanese orthopaedic surgeons tend to select appropriate conservative treatment (such as physical therapy and medication) or surgical treatment with the aim of maintaining and improving their motor function. Thus, the attitude of Japanese orthopaedic surgeons is “to treat patients not only with surgery but also thoroughly using conservative means”. As far as I can ascertain, this attitude differs somewhat from that of orthopaedic surgeons outside Japan.

### 2. The JOA and “locomotive syndrome”

A previous survey on the main reasons for nursing care in Japan revealed that locomotive organ disorders accounted for 25% of all cases [2], being the leading reason for treatment ahead of cerebrovascular diseases and dementia. Locomotive organ disorders were subclassified into falls and fractures (11.8%), joint disease (10.9%) and spinal cord injury (2.3%). In all of them, pain and paralysis were the reasons for nursing care.

In 2007, the JOA proposed the concept of “locomotive syndrome” in order to systematize the treatment and prevention of locomotive organ disorders [3]. Locomotive syndrome is a condition of reduced mobility due to impairment of locomotive organs. Once locomotive syndrome progresses, ambulatory movement such as standing, walking and sitting is restricted. Thus, patients

with locomotive syndrome are at high risk of requiring nursing care.

A previous survey on the incidence of locomotive organ disorders in the Japanese population showed that 25.3 million patients had osteoarthritis of the knee, 37.9 million had lumbar vertebral spondylosis, 6.4 million had lumbar osteoporosis, and 10.7 million had femoral neck osteoporosis. The number of patients who had one or more of the above locomotive organ disorders was 47 million. This indicates that almost one third of the Japanese population have some form of locomotive organ disorder [4].

### 3. Contribution of the JOA to orthopaedic management in the era of “super-ageing”

The approach of Japanese orthopaedic surgeons to the management of locomotive organ disorders has principally been conservative treatment, including physical therapy and pharmacotherapy. When patients require surgical treatment, we make a maximum effort to provide appropriate surgery at an appropriate stage. In addition, considering the recent social and medical situation in Japan, the importance of prevention for locomotive organ disorders has been emphasized. The major reason for this is the falling birth rate and rapid ageing that is occurring in the Japanese population, which is unprecedented anywhere in the world. The total population of Japan reached a peak in 2008, and then began to decline quickly. In the same period, ageing progressed markedly [5].

When the ageing rate (the proportion of the total population that is aged 65 years old or older) exceeds 7%, a country is defined as having an “ageing society”, and when the rate exceeds 14%, it can be defined as having an “aged society”. On the other hand, when the rate exceeds 21%, the term “super-aged society” can be used. Japan became an “ageing society” in 1970, and 24 years later, in 1994, it became an “aged society”. After a further 13 years, in 2007, Japan gained “super-aged society” status. When we compared the data for 2015 with those of other countries, the proportion of aged individuals in Japan was 26.5%, which was by far the top rank in the world. By comparison, the ageing rate in the United States in 2015 was only 14.8%. In addition, speed of aging in Japan has been surprisingly rapid. In Japan, it took 24 years to progress from an “aging” to an “aged” society, whereas it took 46 years in the United Kingdom and 126 years in France to make the same progression [6]. According to the change in the population composition of Japan, aged patients with locomotive organ disorders have also increased rapidly. Consequently, orthopaedic surgeons in Japan

have much more opportunity to treat aged patients with locomotor organ disorders in comparison with other countries.

In view of the falling birth rate and rapid aging rate in Japan, the matter of greatest concern is the decrease in the proportion of individuals of productive age [5]. This decrease will lead to a shortage of finances and manpower. From now on, we will need to create a new medical system to match the era of “super-aging” where finances and manpower will be diminished. This is why the prevention of locomotive organ disorders needs to be emphasized.

#### 4. Campaign for public enlightenment about “locomotive syndrome”

To tackle the problems faced by the Japanese medical system in the era of “super-aging” of society, the JOA established the Locomotive Challenge Council in 2010, and have begun to educate the Japanese population about the importance of treatment and prevention for locomotive organ disorders.

It is well known that Japan is the country with the greatest longevity. The gap between the average life span and years of relatively good health, which represents the period in which daily life is limited, is almost 9 years in men and 12 years in women [7]. The main reason for this limitation is locomotive organ disorders. We wish to extend healthy life expectancy by improving the treatment and prevention of locomotive organ disorders. In order to achieve this, we aim to provide the population of Japan with accurate knowledge of locomotive syndrome so that they can recognize the importance of its treatment and prevention. In 2016, 46.8% of the population claimed to have recognition of the concept of locomotive syndrome [8]. We wish to increase this proportion to a target value of 80%.

To increase the rate of recognition of locomotive syndrome, education of the young generation is important. In addition, we wish to push forward with the JOA Research Project to acquire evidence

that demonstrates the importance of treatment and prevention of locomotive organ disorders.

#### Conflict of interest

The author declare no conflict of interest.

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