Rheumatoid Arthritis in the Northeastern Area of the People’s Republic of China and Western Japan

Y. SUENAGA, M. YASUDA, Y. ZHAO*, S. NONAKA, F. ZHANG*, M. NOBUNAGA

Summary

The clinical features of 134 consecutive hospitalized patients with rheumatoid arthritis in the northeastern area of the People’s Republic of China and 251 consecutive hospitalized patients from western Japan were compared. A total of 91.8% of the Chinese patients were of Han nationality, while all of the patients from Japan were Japanese. The patients in the People’s Republic of China showed more inflammatory articular disease and more frequent subcutaneous nodules than did the Japanese patients in the presence of a less elevated ESR value and less radiographic joint destruction. The clinical features of the patients of Han nationality and the Japanese did not change even after adjusting the patients’ age and disease duration. The reasons for the contradictory features in the Chinese patients still remain to be clarified. This study is hopefully a first step in promoting more precise studies on rheumatoid arthritis in the People’s Republic of China.

Key words Rheumatoid Arthritis, Chinese, Japanese.

INTRODUCTION

Rheumatoid arthritis (RA) is known to be a heterogeneous disease and its clinical features may vary considerably depending on the genetic backgrounds of the patients and environmental factors (1-11). Information from the People’s Republic of China (PRC) has not been widely available except for a few reports from small communities (1-5,12). It has been reported that a lower prevalence and milder disease symptoms are characteristic of the RA patients in China when compared to Caucasians, while southern Chinese patients showed a similar frequency of the HLA-DR4 alleles with DRB third al- lelic hypervariable sequence which is normally associated with susceptibility in Caucasian RA patients (1,3-5,12).

It is of interest to study whether or not RA patients in the northeastern region of the PRC have some differences in comparison to Japanese patients. As a first step, a comparison was made of the clinical features between the patients who are hospitalized at the Harbin Medical University Hospital as well as at its satellite hospitals in the People’s Republic of China and Japanese patients at the Department of Clinical Immunology, Medical Institute of Bioregulation, Kyushu University, Japan. This study is thus hopefully a first step in promoting more precise studies on RA in the PRC.

MATERIAL AND METHODS

I. Patients and case records

The charts of the consecutive hospitalized patients with either definite or classical RA (13) were prepared upon admission to the Harbin Medical University Hospital as well as at its satellite hospitals in the PRC and in the Department of Clinical Immunology, Medical Institute of Bioregulation, Kyushu University, Japan. The former were prepared from the beginning of 1990 until the end of 1991 by Yu Shong Zhao. Dr. Zhao was engaged as a rheumatologist at the hospital of the Medical Institute of Bioregulation, Kyushu University for 18 months from the beginning of 1988. The prepared charts were sent to the Department of Clinical Immunology, Medical Institute of Bioregulation, Kyushu University in 1992. The patients’ profiles of the PRC were then compared with those of the Japanese patients whose charts were prepared from the beginning of 1988 until the end of 1991. In order to exclude the influences of age and disease duration, profiles of paired Chinese of Han nationality and Japanese patients were made in accordance...
with sex as well as age and disease duration, which did not differ by more than 2 years.

II. Clinical and laboratory variables.

For the clinical variables, to assess the disease activity, we used the duration of morning stiffness in the hands (0 to 8 hours), grip strength of the hands in millimeters of mercury on a soft-cuff sphygmomanometer (0 to 260 mmHg), the joint tenderness count (0 to 48), joint swelling count (0 to 48), and functional impairment according to the global functional classes proposed by Steinbrocker (14). The radiographic changes in patients' hands, elbows, shoulders, hips, knees and feet were assessed according to the method of Steinbrocker (14). The assessments of the disease activity and X-ray findings were done either by Dr. Zhao or his colleagues under his supervision in the PRC. In Japan, it was done by Professor Nobunaga upon admission to our institute hospital.

For the laboratory tests, haemoglobin concentration, rheumatoid factor (RF) and the erythrocyte sedimentation rate (ESR; 0 to 145 mm at 60 min) were measured (15,16). RF was measured by the latex fixation test (normal less than x20) in the PRC and by nephelometry (normal < 25 IU/ml) in Japan.

The patients' data at the time of admission to hospital were recorded in the patients' charts in both countries.

III. Drug administration to RA patients in Japan and PRC.

The maximum doses of corticosteroid administered to the patients and the history of the administration of nonsteroidal antirheumatic drugs (NSAID) as well as disease-modifying antirheumatic drugs (DMARD) and immunosuppressants both before and upon admission to the hospital were recorded in the charts. The doses of corticosteroids were expressed as prednisolone-equivalent/day.

IV. Statistical analysis of the data.

The means and standard deviations (SD) were calculated for all variables. A one-way analysis of variance was performed and either the Student's t-test or Welch's t-test was used to compare the mean values of the different groups. For a comparison of the rates, the Chi-square test was used. All p values were determined based on 2-tailed tests. P values of less than 0.05 were considered to be significant.

RESULTS

I. Profile of PRC and Japanese Patients

The case records of 134 Chinese patients and 251 Japanese patients were obtained. All of them fulfilled the diagnostic criteria for definite or classical RA (13). Most Chinese patients (122/134, 91.0%) were born in the northeastern part of the PRC; 8 patients in Heilong Jiang (6.0%), 15 in Jilin (11.2%), 46 in Liaoning (34.3%), 30 in Hebei (22.4%), 11 in Shandong (8.3%) and 12 in Tianjin (9.0%). The majority of them (123/134, 91.8%) were of the Han nationality. The Japanese patients were all Japanese living in Kyushu Island (89.7%), Shikoku Island (5.2%) or the Chugoku district (2.6%) located in the western part of Japan's main island, Honshu.

II. Comparison of clinical and laboratory variables among the patients in the PRC and Japan.

1. Demographic profile (Table I)

There was no difference in sex distribution of both groups of RA patients; however, the mean values of age and disease duration of Chinese patients were significantly lower than those of the Japanese patients.

2. Disease activity (Table I).

Chinese patients showed less grip strength, a more tender joint count, a more swollen joint count, more frequent subcutaneous nodules and more functional impairment than the Japanese patients. On the other hand, the duration of morning stiffness of the hands and the ESR of the Chinese patients were less than those of the Japanese patients.

3. Radiographic changes of the bone.

The radiographic changes in the Chinese patients were less severe than that of the Japanese patients, since the rate of patients showing stage I or II in the Chinese patients (69.4%) and the Japanese patients (37.2%) was significantly different (p < 0.01, \( \chi^2 = 34.2 \)).

4. Drug therapy before and at admission to the hospital (Table II).

NSAIDs were prescribed in more than 95% of the patients of both groups. Chinese medicine was used in more than 90% of the Chinese patients, but for none of the Japanese patients. Gold sodium thiomolate (GST) was