Investigation and analysis on the delayed diagnosis in patients with ankylosing spondylitis in a Chinese population

Sirs,

The most frequently used criteria for Ankylosing Spondylitis (AS) was the 1984 Modified New York Criteria. Some reports showed that applying this criteria would lead to delayed diagnosis for 7 to 11 years (1-5), yet no data from China has been reported. Patients from our hospital were enrolled according to the 1984 Modified New York criteria. Then, rheumatologists required each patient to complete 13 questions. Delayed diagnosis was described as the interval between the onset of AS and the correct diagnosis of AS (6, 7). Onset of AS is considered as the time when the symptoms of AS initiated, while correct diagnosis of AS is taken as the time when patients were first informed of the diagnosis of AS by specialists who confirmed that the AS diagnosis criteria were fulfilled. Family history was considered to be positive if any cases including AS, ReA, anterior uveitis/iritis, psoriasis and Crohn's disease was/were reported among relatives within three degrees of the proband. HLA-B27 was tested when they first visited rheumatologists. Histogram analysis was performed to examine data distribution, *t*-test was adopted to compare means of data accordance with normal distribution, while rank-sum test was used for skewness distribution data.

Two hundred and thirty-eight AS patients answered all 13 questions with male (n=204) to female (n=34) ratio of 6 to 1, and average age of 31.9±8.8 years (range 15-58 years). The average disease duration was 9.8±6.74 months (range 1-40 years) and average duration of delayed diagnosis was 71.7±68.4 years (range 3 months to 38.5 years). Among these patients, the initial symptoms were anterior uveitis/iritis (n=1, 0.4%), solely peripheral arthritis (include enthesitis, arthritis or sausage digits) (n=39, 12.6%), solely spinal symptoms (n=188, 79.0%), both peripheral arthritis and spinal symptoms (n=19, 8.0%). Regarding the risk factors of delayed diagnosis, no statistic difference were found in male and female patients (69.0±65.0/87.9±85.8 months), family history of AS (±): (73.2±77.2/71.9±65.7 months) and HLA-B27± cases, including the average onset age (22.0 years/22.5 years) and the average duration of delayed diagnosis (70.1±67.8 /88.1±83.3 months), respectively. Nevertheless, if both groups are divided by different duration of delayed diagnosis (delay<5 years, 5-10 years and >10 years), there were 24 AS patients (11.9%) who delayed over 10 years in HLA-B27 (+), which was significantly lower than that in HLA-B27 (-) patients (27.8%) (p=0.012).The average duration of delay diagnosis in our study was 71.7 months, which was 1 to 5 years less than results from other reports (1-5). Twenty-six percent of patients with AS family history showed 5.5 years less than those without AS family history in the average delayed diagnosis in the Berlin study in 1999 (8), but our research did not exhibit this relationship. Some researches showed that the average duration of delayed diagnosis was statistically significant in patients with HLA-B27 (+) and with HLA-B27 (-) (9, 10). We analyzed those delaying over 10 years at diagnosing AS: the percentage of the patients with HLA-B27 (+) was much less than those of HLA-B27 (-) (p=0.012). That was the possible reason why the majority of misdiagnosed patients turned out to be HLA-B27 negative.Our data disclosed that 66.4% of 238 patients were misdiagnosed, of which 45.0% was single misdiagnosed, while 21.4% was multiple misdiagnosed (Table I). Arthritis associated with rheumatic fever was the most frequent misdiagnosis. These misdiagnosed patients mainly manifested peripheral symptoms. As for those misdiagnosed as chronic lumber injury or lumbar intervertebral disc hernia, it was perhaps due to the lack of the precise concept and knowledge of the inflammatory low back pain. Finally, all the misdiagnosed patients were not examined by x-ray of the sacroiliac joints. Reconstructing x-rays of the sacroiliac joints was an important parameter in improving our abilities in clinical diagnosis.

Table I. Entity and basis of the misdiagnosed AS patients.

Entity of misdiagnosed AS (no./percentage)	Basis of misdiagnosed AS: Symptoms Axial(n/%)	peripheral(n/%)	p	auxiliary examination*
Arthritis associated with rheumatic fever (37/23.4%)	6/16.3%	31/83.7%	0.000	Elevated ASO or ESR:15 (40.5%); Normal lumbar x-ray:2 (5.4%); Unavailable: 20 (55.1%)
Chronic injure of lumber (36/22.9%)	36/100%	0/0%	0.000	Normal lumbar x-ray: 14 (38.9%); Unavailable: 22 (61.1%)
Intervertebral disc hernia (32/20.3%)	30/93.8%	2/7.2%	0.000	x-ray /CT/MRI showed intervertebral dischernia: 26 (81.3%); Unavailable: 6 (19.7%)
Ischialgia (20/12.7%)	20/100%	0/0%	0.001	Normal lumbar x-ray:10 (50%); Unavailable: 10 (50%)
Rheumatoid arthritis (19/12.0%)	5/26.3%	14/73.7%	0.000	Elevated RF: 8(42.1%) RF unavailable: 11 (57.9%)
Trauma (13/8.2%)	9/69.2%	4/30.8%	0.897	
Lumbar degenerative/ osteoarthritis (13/8.2%)	9/69.2%	4/30.8%	0.897	
Unclear diagnosis (39/24.7%)	23/59.0%	16/41.0%	0.298	

*None of the above had sacroiliac joint x-ray examination.

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