

# Ankylosing spondylitis in Northern Jordan

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## ABSTRACT

**Objective:** This study describes the profile of ankylosing spondylitis as seen in the Rheumatology Practice at Prince Rashid Ben Al-Hassan Hospital, Irbid, Jordan over a period of 14 months.

**Methods:** Fifty-two cases that met the modified New York clinical criteria for ankylosing spondylitis were accumulated. A standardized method that included patients' interview, physical examination including measurements of spinal mobility, medical record review, radiographic and laboratory examination was applied.

**Results:** Forty-two cases (85%) of the 52 accumulated cases were males and 10 cases (15%) were females (male:female ratio of 4.2:1). Their mean age of onset was 26 years (range 16-40 years) and the mean duration of the disease was 8.7 years (range 2-25 years). Symmetrical radiographic sacroiliitis was present in all cases, while radiographic spondylitis was present in 32 cases (62%) and radiographic cervical spine involvement was present in 16 cases (31%). Peripheral arthritis was present in 10 cases (19%), while enthesitis was present in 34 cases

(65%). Conjunctivitis was seen in 28 cases (54%) and uveitis was seen in 2 cases (4%). A positive family history was elicited in 8 cases (15%), and Human Leukocyte Antigen type B27 was positive in 42 cases (81%). All patients were rheumatoid factor negative.

**Conclusion:** Although several limitations to this study were recognized, these were a restraint to an accurate estimate of the incidence of ankylosing spondylitis in northern Jordan. However, the study has provided epidemiological data on ankylosing spondylitis and could be of help for further studies. Further comprehensive-cooperative research including the 3 health sectors (Private, Ministry of Health and Military Hospitals) would be very helpful in establishing a more accurate estimate of the size of the problem in Jordan and providing an accurate profile of ankylosing spondylitis in Jordan.

**Keywords:** Ankylosing, spondylitis, epidemiology, spondyloarthropathy.

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Ankylosing spondylitis (AS) is the 2nd most common form of all spondyloarthropathies, being next to reactive arthritis, encountered in rheumatology practice in the northern part of Jordan. Many patients with AS may be labeled with seronegative rheumatoid arthritis, or chronic back derangement and treated as such, while others are even referred to psychiatric clinics and treated as having neurosis.<sup>1</sup> Many patients included in our study were discovered to have AS despite being treated as having seronegative rheumatoid arthritis, neurosis or mechanical back pain. The same is true for female patients, occasionally, their pelvic pain may be attributed to gynecological causes. In

addition, the tendency towards peripheral joint disease rather than on the axial skeleton can lead to misdiagnosis or a delay in the diagnosis itself.

**Methods.** Fifty-two patients with definite AS, following the modified New York clinical criteria,<sup>2</sup> from a total number of 1456 patients who attended the Rheumatology Clinic at Prince Rashid Ben Al-Hassan Hospital between July 1997 and September 1998 were included in this study. Complete clinical, radiographic and laboratory examinations were carried out. The same examiner assessed all patients in the morning, at the beginning of the clinic hours.

**Inclusion criteria.** Selected variables of

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importance included; back pain of more than 3 months duration, early morning back stiffness equal to or more than 30 minutes, improved by exercise. Enthesopathy manifested as pain and tenderness over different entheses, e.g. sternocostal joints, achilles' tendon insertion and planter fascia, etc. The presence of radiographic sacroiliitis, the presence of peripheral joint involvement and the presence of eye involvement were also included.

**Exclusion criteria.** Patients were excluded from the study, if the age of onset of symptoms was below 16 years, if the duration of symptoms was less than 3 months and if sacroiliitis was due to causes other than AS such as brucellosis, inflammatory bowel disease, hyperparathyroidism, etc.

**Radiographic evaluation.** Radiographs for all 52 cases were recorded for later analysis and these consisted of (1) a posteroanterior view of the pelvis including the hips, (2) an anteroposterior and lateral view of the lumbar spine and (3) an anteroposterior and lateral view of the cervical spine. The radiographs were assessed by a Rheumatologist and a Radiologist. The New York criteria for grading of sacroiliitis which describes 5 grades ranging from 0 to 4 was used. Grade 0 is normal, grade 1 signifies suspicious changes, but no definite abnormality, while grades 2 and 3 relate to blurring of the joint margin, juxta-articular sclerosis, decreased joint space and erosion, and grade 4 describes complete fusion and ankylosis of the joint.<sup>3</sup> For the cervical and the lumbar spine a similar grading system was applied, with grade 0 normal, grade 1 referring to suspicious changes, grade 2 is indicative of squaring or erosion or sclerosis, grade 3 signifies obvious syndesmophyte formation and Grade 4 refers to total ankylosis.

**Measurement.** The same examiner recorded clinical measurements (Table 1) of spinal mobility in the morning at the beginning of the clinic and these included: (1) Schober's test 10 cm<sup>4</sup> (2) modified Schober's test 15cm<sup>5</sup> (3) Fingertip-to-floor distance: the distance in centimeter between the tip of the 3rd finger and the floor with the patient bending forward maximally without flexing the knees,<sup>6</sup> (4) Tragus-to-wall test, the patient stands with heels and

**Table 1** - Clinical measurement in centimeters.

	Mean	Range
Tragus to wall distance	12.4	9-8
Finger tip-to-floor distance	13.2	5-26
Schober's 10 cm test	5.0	0-8
Modified Schober's 15cm test	2.5	0-6
Chest expansion test	4.6	1.5-8

**Table 2** - Laboratory characteristics.

	Mean	Range
WBC count per mm	5200	3400 - 7000
PCV	42	38 - 46
ESR in mm/1st hour	40	25 - 55
HLA-B 27 positive	42 patients	81%
RF negative	52 patients	100%
CRP positive	44 patients	85%

WBC - white blood cell; PCV - packed cell volume; ESR - erythrocyte sedimentation rate; HLA - human leukocyte antigen RF - rheumatoid factor; CRP -C-reactive protein

buttocks touching the wall, knees straight, shoulders back and places the head as far back as possible to keep the chin in<sup>7</sup> (5) Chest expansion: the difference in centimeters between the circumference of the chest at the nipple line on full inspiration and full expiration.<sup>8</sup>

**Laboratory indices.** Blood samples were taken from all patients looking at complete blood cells (CBC), erythrocyte sedimentation rate, C-reactive protein (CRP), rheumatoid factor (RF), kidney and liver function tests and Human Leukocyte Antigen type B-27 (HLA-B27) typing (Table 2).

**Results.** Fifty-two patients were enrolled, 42 males and 10 females, the male/female ratio being (4.2:1). The participants were grouped into 4 age groups (Table 3). As shown in Table 3 the incidence of AS is progressively decreasing with advancing age. The peak incidence occurs during the 2nd and 3rd decades of life. Nineteen males and 2 females developed the disease in Age-group 1, while 9 males and 4 females developed the disease in Age-group 2. Further more, 7 males, 3 females developed the disease in Age-group 3 and only 7 males and 1 female developed the disease in Age-group 4. This

**Table 3** - Age and gender distribution of the patients.

Age	Group 1	Group 2	Group 3	Group 4
Gender	16-25 years	26-35 years	36-45 years	46-60 years
Male	19	9	7	7
Female	2	4	3	1
<b>Total</b>	<b>21</b>	<b>13</b>	<b>10</b>	<b>8</b>

shows that the peak incidence of AS in males lies in Age-group 1 and decreases thereafter, while the peak incidence of AS for females lies in Age-group 2 and Age-group 3 reflects a delay in the diagnosis of AS in females.

Clinically, all patients have either low back pain, buttock pain or pelvic pain and all have morning back stiffness equal to or more than 30 minutes improved by exercise. Enthesopathy was found in 34 patients (65%) and peripheral arthritis was seen in 10 patients (19%), the hips being affected in 6 patients while the knees in 4 patients. Inflammatory eye disease manifested as conjunctivitis in 28 (54%) and acute iritis in 2 (4%) patients, those patients were treated and followed up by both Ophthalmologist and Rheumatologist. Radiographically, all patients had at least grade 2 sacroiliitis bilaterally and 6 patients had grade 4 sacroiliitis with total ankylosis (11.5%). Thirty-two patients (61.5%) had radiographic involvement of the lumbar spine and 16 patients (30%) had cervical spine involvement. A positive family history was elicited in 8 patients (15%), and HLA-B27 was positive in 42 patients (81%). All patients were RF negative.

**Discussion.** Such epidemiological data has not previously been available in Jordan and little is available from neighboring countries. Al-Arfaj<sup>9</sup> describes a profile of AS in Saudi Arabia, which in comparison to this study shows a lower incidence of AS among Saudi Arabians than Jordanians. The male to female ratio was estimated to be (4.2:1) which is slightly higher than the study carried out by Al-Arfaj. This higher ratio could be related to environmental, genetic factors<sup>10</sup> or it may be related to a delay in diagnosis of AS among Jordanian females. The peak incidence of the disease occurs during the 2nd and 3rd decades of life. Indeed, this peaks at the age range 16-25 years for males and at the age range 26-35 years for females, which is very close to most of the studies as there is an increased predisposition to onset at puberty and adulthood and as the disease tends to be milder in females. As expected, HLA-B27 was found to be positive in 42 patients (81%) which is lower than that of most of European studies. Masi et al<sup>11</sup> documented that HLA-B27 is present in over 90% of patients with idiopathic AS. Mardjuadi et al<sup>12</sup> mentioned that 94% of Chinese Indonesians patients with AS possess HLA-B27, while native Indonesians possess only 40%. In comparison to the study carried out by Al-Arfaj<sup>9</sup> who found that the incidence of HLA-B27 positivity among Saudi's to be 67%, while in this study the incidence is higher being 81%.

Peripheral arthritis manifested by pain, tenderness, swelling and limited movement was seen in 10 patients (19%), which is lower than that reported by

Al-Arfaj<sup>9</sup> who reported the incidence of peripheral arthritis in AS to be 33%. The arthritis tends to affect large joints of the lower extremities rather than the small joints. The hips being affected in 6 patients while the knees in 4 patients. With regard to eye involvement, Al-Arfaj<sup>9</sup> reported a 13% incidence of conjunctivitis and a 7% incidence of uveitis compared to this study in which conjunctivitis was seen in 54% and acute iritis seen 4% of cases. All patients who developed acute iritis were HLA-B27 positive.

An objective limitation to this study was that it was carried out in one referral hospital in the northern part of Jordan. Furthermore, it was carried out by the rheumatology clinic, which was run twice per week. Undoubtedly, Orthopedic Surgeons, Internists and General Practitioners may have treated many patients. In addition, many other patients were treated in hospitals of Ministry of Health and private sectors, so that an accurate estimate of the incidence of AS can not be provided. Despite that, this study provides epidemiological data of AS in Jordan and can help in further comprehensive multicentre studies to establish a Jordanian profile of AS.

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