**Impact of Electronic Medical Record Management Systems on the Disease Activity and Frequency of Outpatient Visits of Patients with Ankylosing Spondylitis**

**Supplemental materials**

**Table A. Baseline characteristics of the patients with ankylosing spondylitis (AS) obtained using the electronic medical record management system (EMRMS) for ASDAS assessment**

|  |  |  |
| --- | --- | --- |
| Characteristics | With complete data, n=419 | ≥ 3 continuous assessment with complete data, n=139 |
| **Age, mean (S.D.), years** | 43.1 (14.1) | 43.8 (13.3) |
| **Gender** |  |  |
|  Female, % | 120 (28.6) | 37 (26.6) |
|  Male, % | 299 (71.4) | 102 (73.4) |
| **AS Age, mean (S.D.), years** | 27.6 (12.1) | 27.7 (11.9) |
| **Disease duration, mean (S.D.), years** | 15.6 (11.4) | 16.1 (11.5) |
| **HLA-B27 positive** | 373 (89.0) | 121 (87.1) |
| **Biologics therapy, %** | 152 (36.3) | 40 (28.8) |
| **Co-morbidities** |  |  |
|  Hypertension, % | 89 (21.2) | 34 (24.5) |
|  Diabetes mellitus, % | 31 (7.4) | 6 (4.3) |
|  Hyperlipidemia, % | 61 (14.6) | 26 (18.7) |
|  Hepatitis B, % | 43 (10.3) | 13 (9.4) |
|  Hepatitis C, % | 13 (3.1) | 5 (3.6) |
|  Renal insufficiency, % | 10 (2.4) | 3 (2.2) |
|  Gout, % | 18 (4.3) | 5 (3.6) |
|  Coronary artery disease, % | 9 (2.2) | 5 (3.6) |
|  Stroke, % | 2 (0.5) | 1 (0.7) |
|  Periodontitis, % | 87 (20.8) | 31 (22.3) |
|  Osteoporosis, % | 29 (6.9) | 9 (6.5) |
|  Tuberculosis history, % | 25 (6.0) | 8 (5.8) |
| **AS symptoms** |  |  |
|  Uveitis, % | 110 (26.3) | 35 (25.2) |
|  Psoriasis, % | 33 (7.9) | 16 (11.5) |
|  Crohn's disease, %e |  0 (0.0) | 0 (0.0) |
|  Ulcerative colitis, % | 3 (0.7) | 2 (1.4) |
|  Peripheral arthritis, % | 87 (20.8) | 32 (23.0) |
|  Enthesitis, % | 70 (16.7) | 27 (19.4) |
|  Dactylitis, % | 9 (2.2) | 2 (1.4) |
| **Family history** |  |  |
|  AS-First degree relatives, % | 73 (17.4) | 22 (15.8) |
|  AS-Secondary degree relatives, % | 111 (26.5) | 32 (23.0) |
|  Psoriasis, % | 18 (4.3) | 7 (5.0) |
|  Psoriatic arthritis, % | 1 (0.2) | 1 (0.7) |
|  Uveitis, % | 18 (4.3) | 6 (4.3) |
|  Crohn’s disease, % |  0 (0.0) | 0 (0.0) |
|  Ulcerative colitis, % |  0 (0.0) | 0 (0.0) |
|  Rheumatoid arthritis, % | 25 (6.0) | 9 (6.5) |
|  Systemic Lupus Erythematosus, % | 12 (2.9) | 3 (2.2) |
|  Sicca syndrome, % | 8 (1.9) | 4 (2.9) |
| **Past history** |  |  |
|  Total hip replacement, % | 13 (3.1) | 3 (2.2) |
|  Total knee replacement, % | 2 (0.5) | 1 (0.7) |
|  Fracture, % | 42 (10.0) | 9 (6.5) |
|  Palindromic rheumatism, % | 3 (0.7) | 1 (0.7) |

**Table B. Frequency and time of outpatient visits before and after assessments (missing data removed, n = 419).**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Analysis population | ASDAS | Number | Frequency of outpatient visits (mean ± SD) | P value | Time of outpatient visits (seconds) (mean ± SD) | P value |
| One year before assessment | One year after assessment | One year before assessment | One year after assessment |
| CRP | <1.3 | 129 | 5.9±3.4 | 5.9±3.5 | 0.788 | 9.1±3.4 | 8.9±4.9 | 0.668 |
| 1.3 - <2.1 | 152 | 5.3±3.4 | 5.5±3.2 | 0.251 | 9.6±4.8 | 9.3±4.5 | 0.411 |
| 2.1 - 3.5 | 119 | 5.3±3.3 | 6.1±3.5 | 0.001 | 9.1±4.0 | 9.8±5.4 | 0.209 |
| >3.5 | 19 | 5.3±3.5 | 8.7±3.9 | 0.003 | 10.0±3.8 | 11.0±2.7 | 0.367 |
| ESR | <1.3 | 124 | 5.8±3.3 | 5.7±3.2 | 0.571 | 8.7±3.3 | 8.7±5.0 | 0.904 |
| 1.3 - <2.1 | 163 | 5.5±3.4 | 5.6±3.3 | 0.741 | 9.1±3.8 | 8.8±4.1 | 0.427 |
| 2.1 - 3.5 | 117 | 5.2±3.4 | 6.4±3.8 | <0.001 | 10.0±5.2 | 10.8±5.5 | 0.204 |
| >3.5 | 15 | 5.3±3.7 | 8.8±3.6 | 0.005 | 11.6±3.4 | 10.9±3.0 | 0.586 |
| Total | 419 | 5.5±3.4 | 5.9±3.5 | <0.001 | 9.3±4.1 | 9.4±4.8 | 0.813 |

\*P value based on a paired *t* test

Abbreviations: ASDAS, Ankylosing Spondylitis Disease Activity Score; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate

**Table C. ASDAS-ESR and ASDAS-CRP of three consecutive assessments with complete data (n = 139)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | First assessment | Second assessment | Third assessment | P value |
| 1st vs 2nd | 2nd vs 3rd  | 1st vs 3rd  |
| **ASDAS-CRP** |
|  Mean ±SD | 1.6±0.8 | 1.4±0.8 | 1.4±0.8 | 0.021  | 0.681  | 0.039  |
| Q2 (Q1-Q3) | 1.5 (0.9–2.1) | 1.3 (0.8–1.9) | 1.4 (0.8–1.9) |  |  |  |
| **ASDAS-ESR** |
|  Mean ±SD | 1.6±0.8 | 1.5±0.7 | 1.5±0.7 | 0.070  | 0.864  | 0.083  |
| Q2 (Q1-Q3) | 1.5 (1.1–2.0) | 1.5 (0.9–2.0) | 1.4 (1.1–1.9) |  |  |  |

\*P value according to a paired *t* test

Abbreviations: ASDAS, Ankylosing Spondylitis Disease Activity Score; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate

†Comorbidity was identified within 1 year before the index date.

†Three consecutive times: the earliest time was considered the first time, the second time was 84 ± 7 days after the first time, and the third time was 168 ± 7 days after the first time.