

TABLE E-1 Summary of Chi-Square Test Results for the Association Between Curve Progression and Each Independent Variable

| Variables | Category* | Percentage of Patients Who Had Progression (No. with Progression/Total No.) | P Value |
|---|-----------------|---|---------|
| Age at diagnosis (year) | 11-13 | 64.8 (94/145) | <0.001† |
| | 14-16 | 38.0 (68/179) | |
| Menarchal status | Not yet started | 82.0 (50/61) | <0.001† |
| | Started | 42.6 (112/263) | |
| Risser grade | 0-1 | 80.0 (92/115) | <0.001† |
| | 2-5 | 35.4 (74/209) | |
| Z-score spinal bone mineral density | Normal BMD | 46.8 (110/235) | 0.062 |
| | Osteopenia | 58.4 (52/89) | |
| Z-score femoral neck bone mineral density of convex-side hip | Normal BMD | 46.8 (118/252) | 0.015‡ |
| | Osteopenia | 63.6 (42/66) | |
| Z-score trochanteric bone mineral density of convex-side hip | Normal BMD | 48.1 (114/237) | 0.177 |
| | Osteopenia | 56.8 (46/81) | |
| Z-score femoral neck bone mineral density of concave-side hip | Normal BMD | 45.6 (108/237) | 0.004† |
| | Osteopenia | 64.2 (52/81) | |
| Z-score trochanteric bone mineral density of concave-side hip | Normal BMD | 46.5 (113/243) | 0.014‡ |
| | Osteopenia | 62.7 (47/75) | |
| Curve pattern | Lumbar | 13.3 (2/15) | 0.008† |
| | Thoracic | 55.2 (116/210) | |
| | Thoraco-lumbar | 43.4 (33/76) | |
| | Triple | 47.8 (11/23) | |
| Initial Cobb angle (degree) | 10°-19° | 53.4 (39/73) | 0.001† |
| | 20°-29° | 40.1 (67/167) | |
| | 30°-39° | 65.6 (40/61) | |
| | >40° | 69.6 (16/23) | |
| Family history of scoliosis | No | 50.4 (140/278) | 0.750 |
| | Yes | 47.8 (22/46) | |

*BMD = bone mineral density. †P < 0.01. ‡P < 0.05.

TABLE E-2 Independent Variables Associated with Curve Progression of Adolescent Idiopathic Scoliosis in Univariate and Multiple Logistic Regression Analyses (95% Confidence Interval)*

| Independent Variables | Univariate Analysis | | Multivariate Analysis† | |
|---------------------------------------|---------------------|---------|------------------------|---------|
| | Odds Ratio | P Value | Adjusted Odds Ratio | P Value |
| Age at diagnosis (year) | | | | |
| 14-16‡ | 1 | | 1 | |
| 11-13 | 3.01 (1.91-4.74) | <0.001 | 2.06 (1.07-3.96) | 0.03 |
| Menarchal status | | | | |
| Started‡ | 1 | | 1 | |
| Not yet started | 6.13 (3.05-12.30) | <0.001 | 2.48 (1.02-6.02) | 0.044 |
| Risser grade | | | | |
| 2-5‡ | 1 | | 1 | |
| 0-1 | 7.31 (4.09-13.08) | <0.001 | 4.68 (2.21-9.92) | <0.001 |
| Spinal Z-score BMD | | | | |
| Normal BMD‡ | 1 | | | |
| Osteopenia | 1.60 (0.98-2.62) | 0.063 | | |
| Convex-side femoral neck Z-score BMD | | | | |
| Normal BMD‡ | 1 | | | |
| Osteopenia | 1.99 (1.14-3.48) | 0.016 | | |
| Convex-side trochanter Z-score BMD | | | | |
| Normal BMD‡ | 1 | | | |
| Osteopenia | 1.42 (0.85-2.36) | 0.178 | | |
| Concave-side femoral neck Z-score BMD | | | | |
| Normal BMD‡ | 1 | | 1 | |
| Osteopenia | 2.14 (1.27-3.61) | 0.004 | 2.25 (1.13-4.49) | 0.021 |
| Concave-side trochanter Z-score BMD | | | | |
| Normal BMD‡ | 1 | | | |
| Osteopenia | 1.93 (1.14-3.29) | 0.015 | | |
| Curve Pattern | | | | |
| Lumbar‡ | 1 | | | |
| Thoracic | 8.01 (1.77-36.38) | 0.007 | | |
| Thoracolumbar | 4.98 (1.05-23.62) | 0.043 | | |
| Triple | 5.95 (1.09-32.53) | 0.040 | | |
| Initial Cobb angle | | | | |
| 10°-19°‡ | 1 | | 1 | |
| 20°-29° | 0.58 (0.34-1.02) | 0.057 | 1.21 (0.57-2.56) | NS |
| 30°-39° | 1.66 (0.82-3.35) | 0.156 | 4.77 (1.92-11.85) | 0.001 |
| ≥40° | 1.99 (0.73-5.42) | 0.177 | 4.58 (1.32-15.93) | 0.017 |

*Hosmer and Lemeshow goodness-of-fit test: chi square = 4.22, degrees of freedom = 8, p = 0.84. The following non-significant variables were excluded by stepwise procedure and were not included in the final model: spinal Z-score BMD, convex-side femoral neck Z-score BMD, convex-side trochanter Z-score BMD, concave-side trochanter Z-score BMD, and curve pattern. BMD = bone mineral density.

†Due to missing data for some variables, only 288 patients could be included in the multivariate analyses.

NS = not significant. ‡Reference category.