**Supplementary material**

**Supplementary Table 1: Multivariable multinomial logistic regression for having one-compartment involved and multi-compartment involved of cartilage damage in knee at Risk for Osteoarthritis.**

|  |  |  |
| --- | --- | --- |
|  | **Two-compartment *vs.* one-compartment** | **Three-compartment *vs.* one-compartment** |
| **Items**  | **OR (95% CI)** | ***P* values** | **OR (95% CI)** | ***P* values** |
| Age (years) | 1.02 (1.01–1.03) | 0.042 | 1.05 (1.02–1.08) | 0.004 |
| Obesity\*  | 1.74 (1.13–2.68) | 0.013 | 1.73 (1.05–2.86) | 0.038 |
| WOMAC score | 0.96 (0.89–1.04) | 0.352 | 0.99 (0.89–1.09) | 0.808 |
| **Duration of knee pain (years)** |  |  |  |  |
| ＜1 | Reference |  | Reference |  |
| ≥2 | 1.52 (0.93–2.48) | 0.095 | 1.24 (0.67–2.29) | 0.493 |
| **Baseline KL grade**  |  |  |  |  |
| 0 | Reference |  | Reference |  |
| 1 | 1.29 (0.81–2.07) | 0.287 | 0.77 (0.41–1.43) | 0.406 |
| **Baseline medial tibiofemoral joint space narrowing score** |  |  |  |  |
| 0 | Reference |  | Reference |  |
| 1 | 1.01 (0.59–1.73) | 0.983 | 1.22 (0.61–2.45) | 0.567 |
| **Baseline Alignment** |  |  |  |  |
| Type  |  |  |  |  |
| Varus | 0.83 (0.48–1.43) | 0.491 | 0.39 (0.19–0.80) | 0.010 |
| Valgus | 0.97 (0.59–1.58) | 0.902 | 0.42 (0.23–0.77) | 0.005 |
| FTA | 1.11 (0.99–1.25) | 0.075 | 1.21 (1.03–1.42) | 0.019 |
| **Medial meniscus** |  |  |  |  |
|  Tear | 0.85 (0.51–1.40) | 0.517 | 1.24 (0.66–2.31) | 0.503 |
|  Extrusion | 1.64 (1.01–2.67) | 0.049 | 3.66 (2.01–6.66) | <0.001 |
| **Lateral meniscus** |  |  |  |  |
|  Tear  | 2.79 (1.08–7.20) | 0.034 | 3.55 (1.17–10.73) | 0.025 |
|  Extrusion  | 1.83 (0.50–6.75) | 0.364 | 1.92 (0.43–8.64) | 0.396 |
| **Bone marrow lesion** |  |  |  |  |
|  Medial tibiofemoral | 1.50 (0.83–2.70) | 0.176 | 2.08 (1.05–4.13) | 0.036 |
|  Lateral tibiofemoral | 5.41 (1.60–18.27) | 0.007 | 10.75 (3.03–38.15) | <0.001 |
|  Patellofemoral | 1.49 (0.99–2.25) | 0.055 | 3.82 (2.18–6.69) | <0.001 |
| Patellar grind | 1.09 (0.28–4.20) | 0.906 | 1.66 (0.67–4.09) | 0.270 |
| Contralateral OA  | 1.48 (0.97–2.27) | 0.069 | 1.63 (0.95–2.80) | 0.074 |

\*Obesity was defined as BMI ≥30 kg/m2. CI: Confidence interval; FTA: Femoral tibial angle; JSN: Joint space narrowing; KL grade: Kellgren–Lawrence grade; OA: Osteoarthritis; OR: Odds ratio; WOMAC: Western Ontario & McMaster Universities Osteoarthritis Index.