|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Item** | **All patients with pain** | |  | **Mild-to-moderate pain** | |  | **Severe pain** | |
| **No. (%)** | **Average score** |  | **No. (%)** | **Average score** |  | **No. (%)** | **Average score** |
| All patients |  |  |  |  |  |  |  |  |
| Total no. of patients | 349 | ― |  | 233 | ― |  | 116 | ― |
| Numbness | 108 (30.9%) | 35 ± 21 |  | 98 (42.1%) | 36 ± 20 |  | 10 (8.6%) | 28 ± 20 |
| Tingling pain | 102 (29.2%) | 33 ± 20 |  | 81 (34.8%) | 32 ± 20 |  | 21 (18.1%) | 35 ± 19 |
| Increased pain due to touch | 123 (35.2%) | 31 ± 19 |  | 88 (37.8%) | 29 ± 19 |  | 35 (30.2%) | 35 ± 20 |
| Total discriminant function score\* | ― | 1.02 ± 0.12 |  | ― | 1.03 ± 0.10 |  | ― | 1.00 ± 0.12 |
|  |  |  |  |  |  |  |  |  |
| Discovery cohort |  |  |  |  |  |  |  |  |
| Total no. of patients | 246 | ― |  | 165 | ― |  | 81 | ― |
| Numbness | 65 (26.4%) | 37 ± 26 |  | 58 (35.1%) | 38 ± 26 |  | 7 (8.6%) | 26 ± 26 |
| Tingling pain | 62 (25.2%) | 33 ± 22 |  | 48 (29.1%) | 32 ± 22 |  | 14 (17.3%) | 35 ± 22 |
| Increased pain due to touch | 75 (30.5%) | 31 ± 21 |  | 51 (30.9%) | 29 ± 20 |  | 24 (29.6%) | 36 ± 21 |
| Total discriminant function score\* | ― | 1.03 ± 0.18 |  | ― | 1.04 ± 0.18 |  | ― | 1.01 ± 0.11 |
|  |  |  |  |  |  |  |  |  |
| Validation cohort |  |  |  |  |  |  |  |  |
| Total no. of patients | 103 | ― |  | 68 | ― |  | 35 | ― |
| Numbness | 43 (8.6%) | 32 ± 23 |  | 40 (63.2%) | 34 ± 23 |  | 3 (8.6%) | 32 ± 22 |
| Tingling pain | 40 (8.0%) | 33 ± 20 |  | 33 (83.8%) | 33 ± 20 |  | 7 (20.0%) | 34 ± 20 |
| Increased pain due to touch | 48 (9.6%) | 30 ± 19 |  | 37 (54.4%) | 29 ± 20 |  | 11 (31.4%) | 34 ± 20 |
| Total discriminant function score\* | ― | 1.01 ± 0.18 |  | ― | 1.03 ± 0.17 |  | ― | 0.98 ± 0.13 |

**Supplemental Digital Content 2.**

**Table S1.** Neuropathic pain symptoms in patients with chronic postsurgical pain.

Values are No. (%) or mean ± standard deviations

\*Total discriminant function score was calculated according to the neuropathic pain questionnaire. Each of the three items (numbness, tingling pain and increased pain due to touch) was scored between 0 (pain free) to 100 (worst pain). Total discriminant function score = – 1.302 + 0.017 × Numbness + 0.015 × Tingling pain + 0.011 × Increased pain due to touch. A score < 0 indicates non-neuropathic pain, whereas a score ≥ 0 strongly suggests neuropathic pain.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Interference items** | **All patients with pain** | |  | **Mild-to-moderate pain** | |  | **Severe pain** | |
| **No. (%)** | **Interference score** |  | **No. (%)** | **Interference score** |  | **No. (%)** | **Interference score** |
| All patients (*n* = 349) |  |  |  |  |  |  |  |  |
| Normal work | 148 (42.4%) | 1.8 ± 2.7 |  | 113 (32.4%) | 1.8 ± 2.2 |  | 35 (10.0%) | 2.0 ± 1.9 |
| Walk | 190 (54.4%) | 2.3 ± 2.7 |  | 133 (38.1%) | 2.3 ± 2.1 |  | 57 (16.3%) | 2.5 ± 2.1 |
| Relation with others | 85 (24.4%) | 0.8 ± 1.7 |  | 65 (18.6%) | 0.8 ± 1.7 |  | 20 (5.7%) | 0.8 ± 1.8 |
| Enjoyment of life | 168 (48.1%) | 2.1 ± 2.1 |  | 97 (27.8%) | 1.8 ± 2.1 |  | 71 (48.1%) | 2.6 ± 2.0 |
| General activity | 180 (51.6%) | 2.4 ± 2.0 |  | 103 (29.5%) | 2.3 ± 2.0 |  | 77 (22.1%) | 2.6 ± 2.0 |
| Mood | 199 (57.0%) | 2.5 ± 2.7 |  | 110 (31.5%) | 2.4 ± 2.4 |  | 89 (25.5%) | 2.6 ± 2.3 |
| Sleep | 159 (45.6%) | 2.2 ± 2.7 |  | 59 (16.9%) | 1.3 ± 2.5 |  | 100 (28.7%) | 2.7 ± 2.6 |
|  |  |  |  |  |  |  |  |  |
| Discovery cohort (*n* = 246) |  |  |  |  |  |  |  |  |
| Normal work | 106 (43.2%) | 1.9 ± 2.7 |  | 83 (33.8%) | 1.8 ± 2.0 |  | 23 (9.3%) | 2.1 ± 2.1 |
| Walk | 140 (56.8%) | 2.3 ± 2.8 |  | 109 (44.3%) | 2.3 ± 2.2 |  | 31 (12.6%) | 2.5 ± 2.3 |
| Relation with others | 62 (25.5%) | 0.8 ± 1.8 |  | 53 (21.5%) | 0.8 ± 1.0 |  | 9 (3.7%) | 0.9 ± 0.9 |
| Enjoyment of life | 123 (50.0%) | 2.1 ± 2.8 |  | 78 (31.7%) | 1.8 ± 2.0 |  | 45 (18.3%) | 2.7 ± 2.2 |
| General activity | 131 (53.4%) | 2.5 ± 3.0 |  | 81 (32.9%) | 2.3 ± 2.1 |  | 50 (20.3%) | 2.8 ± 2.1 |
| Mood | 146 (59.3%) | 2.5 ± 2.7 |  | 77 (31.3%) | 2.4 ± 2.1 |  | 69 (28.0%) | 2.6 ± 2.5 |
| Sleep | 117 (47.9%) | 2.2 ± 2.9 |  | 41 (16.7%) | 1.2 ± 1.3 |  | 76 (30.9%) | 2.7 ± 2.0 |
|  |  |  |  |  |  |  |  |  |
| Validation cohort (*n* = 103) |  |  |  |  |  |  |  |  |
| Normal work | 42 (40.8%) | 1.8 ± 2.7 |  | 30 (29.1%) | 1.8 ± 1.5 |  | 12 (11.3%) | 1.9 ± 1.2 |
| Walk | 50 (48.5%) | 2.3 ± 2.8 |  | 24 (23.3%) | 2.1 ± 2.0 |  | 26 (25.2%) | 2.5 ± 2.1 |
| Relation with others | 23 (22.3%) | 0.8 ± 1.8 |  | 12 (11.7%) | 0.9 ± 0.9 |  | 11 (10.7%) | 0.7 ± 0.7 |
| Enjoyment of life | 45 (43.7%) | 2.1 ± 2.2 |  | 19 (18.4%) | 1.6 ± 1.2 |  | 26 (25.2%) | 2.4 ± 2.3 |
| General activity | 49 (47.6%) | 2.2 ± 2.0 |  | 22 (21.4%) | 2.2 ± 2.0 |  | 27 (26.2%) | 2.3 ± 2.0 |
| Mood | 53 (51.5%) | 2.4 ± 2.7 |  | 33 (32.0%) | 2.3 ± 2.1 |  | 20 (19.4%) | 2.7 ± 2.1 |
| Sleep | 42 (40.8%) | 2.1 ± 2.9 |  | 18 (17.5%) | 1.3 ± 1.1 |  | 24 (23.3%) | 2.7 ± 2.1 |

**Table S2.** Impact of chronic postsurgical pain.

Interference of daily activities was scored by modified brief pain inventory. Scores ranges from 0 = no interference to 10 = complexly interfered. Values are number (%) or mean ± standard deviation.

**Table S3.** General health status, measured by ED-5D, in patients with and without chronic postsurgical pain.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **EQ-5D items** | **Patients without pain** | **Patients with chronic postsurgical pain** | | | | | | | |
| **All Patients** | ***P* value§** |  | **Mild-to-moderate pain** | ***P* value§** |  | **Severe pain** | ***P* value§** |
| All patients |  |  |  |  |  |  |  |  |  |
| Total no. | 1,303 | 349 |  |  | 233 |  |  | 116 |  |
| Motion | 145 (11.2%) | 80 (22.9%) | <0.001 |  | 50 (21.5%) | <0.001 |  | 30 (25.8%) | <0.001 |
| Self-care | 97 (7.4%) | 43 (12.3%) | 0.002 |  | 28 (12.0%) | 0.007 |  | 15 (12.9%) | 0.018 |
| Usual activities | 132 (10.1%) | 67 (19.2%) | <0.001 |  | 41 (17.6%) | 0.001 |  | 26 (22.4%) | 0.001 |
| Pain/discomfort | 137 (10.5%) | 79 (22.6%) | <0.001 |  | 39 (16.7%) | 0.003 |  | 40 (34.5%) | <0.001 |
| Anxiety/Depression | 249 (19.1%) | 98 (28.1%) | 0.001 |  | 62 (26.7%) | 0.001 |  | 36 (31.0%) | 0.001 |
| EQ-5D VAS\* | 79 ± 33 | 67 ± 15 | <0.001 |  | 68 ± 12 | <0.001 |  | 65 ± 14 | <0.001 |
|  |  |  |  |  |  |  |  |  |  |
| Discovery cohort |  |  |  |  |  |  |  |  |  |
| Total no. | 906 | 246 |  |  | 165 |  |  | 81 |  |
| Motion | 109 (12.0%) | 56 (22.7%) | 0.010 |  | 35 (21.2%) | 0.001 |  | 21 (25.9%) | 0.001 |
| Self-care | 70 (7.7%) | 32 (12.8%) | 0.020 |  | 21 (12.7%) | 0.014 |  | 11 (13.6%) | 0.032 |
| Usual activities | 92 (10.1%) | 46 (18.7%) | 0.010 |  | 28 (16.9%) | 0.005 |  | 18 (22.2%) | 0.001 |
| Pain/discomfort | 94 (10.4%) | 56 (22.9%) | <0.001 |  | 27 (16.4%) | 0.010 |  | 29 (35.8%) | <0.001 |
| Anxiety/Depression | 186 (20.5%) | 71 (28.9%) | 0.012 |  | 45 (27.3%) | 0.013 |  | 26 (32.1%) | 0.007 |
| EQ-5D VAS\* | 76 ± 47 | 69 ± 19 | 0.028 |  | 70 ± 16 | 0.179 |  | 68 ± 12 | 0.199 |
|  |  |  |  |  |  |  |  |  |  |
| Validation cohort |  |  |  |  |  |  |  |  |  |
| Total no. | 103 | 103 |  |  | 68 |  |  | 35 |  |
| Motion | 13 (12.6%) | 24 (23.3%) | 0.043 |  | 14 (20.6%) | 0.064 |  | 10 (28.6%) | 0.022 |
| Self-care | 9 (8.7%) | 11 (10.7%) | 0.167 |  | 7 (10.3%) | 0.196 |  | 4 (11.4%) | 0.223 |
| Usual activities | 10 (9.7%) | 21 (20.4%) | 0.016 |  | 13 (19.1%) | 0.039 |  | 8 (22.8%) | 0.034 |
| Pain/discomfort | 12 (11.6%) | 23 (22.3%) | 0.019 |  | 11 (16.2%) | 0.125 |  | 12 (34.3%) | 0.003 |
| Anxiety/Depression | 23 (22.3%) | 27 (26.2%) | 0.105 |  | 15 (22.1%) | 0.149 |  | 12 (34.3%) | 0.066 |
| EQ-5D VAS\* | 75 ± 36 | 61 ± 13 | <0.001 |  | 63 ± 17 | 0.010 |  | 58 ± 15 | 0.007 |

Values are no. (%) of patients with some difficulty of each of the EQ-5D item.

\*EQ-5D visual analogue scale (VAS) was measured by a 100 mm linear scale, expressed as mean ± standard deviation, where 0 = worst imaginable health state and 100 = best possible health state.

§*P* values compared with patient without pain.