**Supplementary material A**

|  |
| --- |
| Number of patients evaluated at each time point |
|  | XRT (n = 48) | PBT (n = 41) |
| (At 3 months) |  |  |  |
| Evaluated |  | 39 | 38 |
| Not Evaluated | Received other treatments | 6 | 3 |
|  | Local recurrence | 0 | 0 |
|  | Data missing | 4 | 0 |
| (At 6 months) |  |  |  |
| Evaluated |  | 32 | 32 |
| Not Evaluated | Received other treatments | 7 | 7 |
|  | Local recurrence | 2 | 1 |
|  | Data missing | 7 | 1 |
| PBT: proton beam therapy, XRT: X-ray radiotherapy |

**Supplementary material B**

ALBI grade change at 3 and 6 months are shown

|  |  |  |
| --- | --- | --- |
| At 3 months | XRT | PBT |
| With 0-1 predictive factor | n=25 | n=18 |
|  | No change | 16 (60.0%) | 14 (77.7%) |
|  | Grade 1→2 | 8 (32.0%) | 2 (11.1%) |
|  | Grade 2→1 | 1 (4.0%) | 2 (11.1%) |
| With 2-3 predictive factor | n=14 | n=20 |
|  | No change | 11 (78.5%) | 11 (55.0%) |
|  | Grade 1→2 | 1 (7.1%) | 9 (45.0%) |
|  | Grade 2→1 | 1 (7.1%) | 0 |
|  | Grade 2→3 | 1 (7.1%) | 0 |
| At 6 months | XRT | PBT |
| With 0-1 predictive factor | n=24 | n=15 |
|  | No change | 14 (58.3%) | 9 (60.0%) |
|  | Grade 1→2 | 8 (33.3%) | 4 (26.6%) |
|  | Grade 2→1 | 2 (8.3%) | 2 (13.3%) |
| With 2-3 predictive factor | n=8 | n=17 |
|  | No change | 7 (87.5%) | 9 (52.9%) |
|  | Grade 1→2 | 1 (12.5%) | 6 (35.2%) |
|  | Grade 2→1 | 0 | 1 (5.8%) |
|  | Grade 2→3 | 0 | 1 (5.8%) |
| PBT: proton beam therapy, XRT: X-ray radiotherapy. |

**Supplementary material C**

Directly comparing changes in ALBI and Child-Pugh scores at 3 and 6 months by treatment modalities (XRT vs PBT) and by number of predictive factors (0-1 vs 2-3) showed no significant difference between XRT and PBT in any of the panels below. However, patient backgrounds in PBT and XRT were different, and results should still be interpreted with caution.

