**Supplementary table 1.** Missing data percentage and median values of blood test parameters before and after Nearest Neighbor Imputation (k-NN).

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **Missing data (n)** | **Median (IQR) before k-NN** | **Median (IQR) after k-NN** |
| NLR | 31 (3.05%) | 1.90 (IQR 1.41-2.64) | 1.92 (IQR 1.42-2.62) |
| PLR | 31 (3.05%) | 114.6 (IQR 88.9-146.2) | 114.8 (IQR 90.1-145) |
| LMR [103/μL] | 31 (3.05%) | 3.32 (IQR 2.57-4.31) | 3.32 (IQR 2.57-4.28) |
| WBC [103/μL] | 2 (0.20%) | 6.43 (IQR 5.3-7.7) | 6.43 (IQR 5.3-7.7) |
| LYMPH [103/μL] | 31 (3.05%) | 1.85 (IQR 1.48-2.36) | 1.86 (IQR 1.5-2.35) |
| NEUT [103/μL] | 14 (1.38%) | 3.61 (IQR 2.87-4.56) | 3.61 (IQR 2.87-4.56) |
| AMC [103/μL] | 13 (1.28%) | 0.56 (IQR 0.44-0.71) | 0.56 (IQR 0.45-0.71) |
| EO [103/μL] | 30 (2.95%) | 0.14 (IQR 0.09-0.22) | 0.15 (IQR 0.09-0.22) |
| BASO [103/μL] | 15 (1.48%) | 0.03 (IQR 0.02-0.04) | 0.03 (IQR 0.02-0.04) |
| RBC [106/μL] | 3 (0.30%) | 4.48 (IQR 4.2-4.77) | 4.48 (IQR 4.2-4.77) |
| HGB | 0 | N/A | N/A |
| HCT | 16 (1.57%) | 40.6% (IQR 38.6-42.9) | 40.6% (IQR 38.7-42.9) |
| RDW | 49 (4.82%) | 13.3% (IQR 12.8-14) | 13.4% (IQR 12.8-14) |
| PLT | 0 | N/A | N/A |
| PDW [fL] | 243 (23.92%) | 12 (11-13.4) | 12.3 (IQR 11.2-13.6) |

NLR – neutrophil-to-lymphocyte ratio, PLR – platelet-to-lymphocyte ratio, LMR – lymphocyte-to-monocyte ratio, WBC – absolute white blood cell count, LYMPH – absolute lymphocyte count, NEUT – absolute neutrophile count, AMC – absolute monocyte count, EO – absolute eosinophile count, BASO – absolute basophile count, RBC – absolute red blood cell count, HGB – hemoglobin concentration, HCT – hematocrit, RDW – red blood cell distribution width, PLT – absolute platelet count, PDW – platelet distribution width

**Supplementary table 2.** Detailed data on irradiation of patients treated for localized or locally advanced prostate cancer.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **EBRT (n = 824)****n (%)** | **EBRT + single BT-boost (n = 125)****n (%)** | **EBRT + double BT-boost (n = 67)****n (%)** |
| Total dose [Gy] |  |  |  |
|  42 / 2 | 1 (0.12%) |  |  |
|  44 / 2 | 1 (0.12%) | 1 (0.8%) | 1 (1.5%) |
|  46 / 2 |  | 1 (0.8%) | 48 (71.6%) |
|  50 / 2 |  |  | 17 (25.4%) |
|  54 / 2 |  | 117 (93.6%) | 1 (1.5%) |
|  56 / 2 |  | 1 (0.8%) |  |
|  58 / 2 | 1 (0.12%) |  |  |
|  62.5 / 2.5 | 6 (0.72%) |  |  |
|  64 / 2 |  | 5 (4%) |  |
|  68 / 2 | 1 (0.12%) |  |  |
|  70 / 2 | 5 (0.61%) |  |  |
|  72 / 2 | 14 (1.7%) |  |  |
|  73.8 / 1.8 | 2 (0.24%) |  |  |
|  74 / 2 | 38 (4.61%) |  |  |
|  75.6 / 1.8 | 12 (1.46%) |  |  |
|  76 / 2 | 719 (87.3%) |  |  |
|  45 / 1.8 + 32 / 2 | 1 (0.12%) |  |  |
|  78 / 2 | 23 (2.8%) |  |  |
| BT dose [Gy] |  |  |  |
|  10 / 10 |  | 108 (86.4%) |  |
|  10.5 / 10.5 |  | 17 (13.6%) |  |
|  14 / 7 |  |  | 1 (1.5%) |
|  20 / 10 |  |  | 28 (41.8%) |
|  21 / 10.5 |  |  | 37 (55.2%) |
|  22 / 11 |  |  | 22 (32.8%) |
| Lymph nodes dose [Gy] |  |  |  |
|  0 | 199 (24.2%) | 20 (16%) | 25 (37.3%) |
|  37.5 / 2.5 | 1 (0.12%) |  |  |
|  42 / 2 | 1 (0.12%) |  |  |
|  43.2 / 1.8 | 1 (0.12%) |  |  |
|  44 / 2 | 571 (69.3%) | 103 (82.4%) | 14 (20.9%) |
|  45 / 1.8 | 20 (2.43%) |  |  |
|  46 / 2 | 9 (1.01%) | 2 (1.6%) | 14 (20.9%) |
|  50 / 2 | 22 (2.67%) |  | 14 (20.9%) |
| N1 boost dose [Gy] |  |  |  |
|  60 / 2 | 4 (0.49%) |  |  |
|  64 / 2 | 1 (0.12%) |  |  |
|  66 / 2 | 6 (0.73%) |  |  |
|  70 / 2 | 1 (0.12%) |  |  |
|  72 / 2 | 1 (0.12%) |  |  |
|  75.6 / 1.8 | 1 (0.12%) |  |  |

EBRT – external beam radiotherapy; BT – brachytherapy

**Supplementary table 3.** Spearman's rank correlation for pre-treatment morphology parameters in prostate cancer patients undergoing radiotherapy. The Spearman correlation coefficient with P-value below is given in each cell. Pairs between which there is no correlation are bolded in red font.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **NLR** | **PLR** | **LMR** | **WBC** | **NEUT** | **LYMPH** | **AMC** | **EO** | **BASO** | **RBC** | **HGB** | **HCT** | **RDW** | **PLT** | **PDW** |
| **NLR** |  | 0.54 | -0.65 | 0.24 | 0.62 | -0.57 | 0.13 | -0.21 | -0.09 | -0.02 | -0.04 | 0.00 | 0.07 | -0.01 | 0.03 |
| <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.004 | 0.427 | 0.222 | 0.877 | 0.037 | 0.811 | 0.329 |
| **PLR** | 0.54 |  | -0.49 | -0.35 | -0.05 | -0.76 | -0.21 | -0.24 | -0.10 | -0.19 | -0.22 | -0.20 | 0.00 | 0.37 | -0.21 |
| <0.001 |  | <0.001 | <0.001 | 0.104 | <0.001 | <0.001 | <0.001 | 0.002 | <0.001 | <0.001 | <0.001 | 0.9305 | <0.001 | <0.001 |
| **LMR** | -0.65 | -0.49 |  | 0.00 | -0.24 | 0.57 | -0.51 | 0.09 | 0.07 | 0.05 | 0.04 | 0.00 | -0.04 | 0.07 | 0.01 |
| <0.001 | <0.001 | 0.878 | <0.001 | <0.001 | <0.001 | 0.005 | 0.038 | 0.100 | 0.157 | 0.875 | 0.265 | 0.024 | 0.747 |
| **WBC** | 0.24 | -0.35 | 0.00 |  | 0.87 | 0.58 | 0.60 | 0.23 | 0.25 | 0.24 | 0.24 | 0.27 | 0.12 | 0.30 | 0.04 |
| <0.001 | <0.001 | 0.878 |  | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.208 |
| **NEUT** | 0.62 | -0.05 | -0.24 | 0.87 |  | 0.21 | 0.47 | 0.04 | 0.13 | 0.18 | 0.17 | 0.21 | 0.13 | 0.24 | 0.04 |
| <0.001 | 0.104 | <0.001 | <0.001 | <0.001 | <0.001 | 0.248 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.212 |
| **LYMPH** | -0.57 | -0.76 | 0.57 | 0.58 | 0.21 |  | 0.33 | 0.31 | 0.24 | 0.21 | 0.22 | 0.22 | 0.06 | 0.24 | 0.02 |
| <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |  | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.060 | <0.001 | 0.615 |
| **AMC** | 0.13 | -0.21 | -0.51 | 0.60 | 0.47 | 0.33 |  | 0.23 | 0.16 | 0.16 | 0.17 | 0.22 | 0.09 | 0.15 | 0.03 |
| <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.004 | <0.001 | 0.400 |
| **EO** | -0.21 | -0.24 | 0.09 | 0.23 | 0.04 | 0.31 | 0.23 |  | 0.37 | 0.07 | 0.05 | 0.04 | 0.05 | 0.09 | 0.12 |
| <0.001 | <0.001 | 0.005 | <0.001 | 0.248 | <0.001 | <0.001 |  | <0.001 | 0.036 | 0.113 | 0.205 | 0.100 | 0.004 | <0.001 |
| **BASO** | -0.09 | -0.10 | 0.07 | 0.25 | 0.13 | 0.24 | 0.16 | 0.37 |  | 0.12 | 0.12 | 0.09 | 0.21 | 0.22 | 0.18 |
| 0.004 | 0.002 | 0.038 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.003 | <0.001 | <0.001 | <0.001 |
| **RBC** | -0.02 | -0.19 | 0.05 | 0.24 | 0.18 | 0.21 | 0.16 | 0.07 | 0.12 |  | 0.83 | 0.85 | 0.05 | 0.03 | 0.07 |
| 0.427 | <0.001 | 0.100 | <0.001 | <0.001 | <0.001 | <0.001 | 0.036 | <0.001 |  | <0.001 | <0.001 | 0.097 | 0.269 | 0.027 |
| **HGB** | -0.04 | -0.22 | 0.04 | 0.24 | 0.17 | 0.22 | 0.17 | 0.05 | 0.12 | 0.83 |  | 0.92 | -0.09 | 0.00 | 0.06 |
| 0.222 | <0.001 | 0.157 | <0.001 | <0.001 | <0.001 | <0.001 | 0.113 | <0.001 | <0.001 | <0.001 | 0.003 | 0.882 | 0.058 |
| **HCT** | 0.00 | -0.20 | 0.00 | 0.27 | 0.21 | 0.22 | 0.22 | 0.04 | 0.09 | 0.85 | 0.92 |  | -0.02 | 0.03 | 0.06 |
| 0.877 | <0.001 | 0.875 | <0.001 | <0.001 | <0.001 | <0.001 | 0.205 | 0.003 | <0.001 | <0.001 |  | 0.504 | 0.353 | 0.044 |
| **RDW** | 0.07 | 0.00 | -0.04 | 0.12 | 0.13 | 0.06 | 0.09 | 0.05 | 0.21 | 0.05 | -0.09 | -0.02 |  | 0.08 | 0.13 |
| 0.037 | 0.931 | 0.265 | <0.001 | <0.001 | 0.060 | 0.004 | 0.100 | <0.001 | 0.097 | 0.003 | 0.504 | 0.010 | <0.001 |
| **PLT** | -0.01 | 0.37 | 0.07 | 0.30 | 0.24 | 0.24 | 0.15 | 0.09 | 0.22 | 0.03 | 0.00 | 0.03 | 0.08 |  | -0.29 |
| 0.811 | <0.001 | 0.024 | <0.001 | <0.001 | <0.001 | <0.001 | 0.004 | <0.001 | 0.269 | 0.882 | 0.353 | 0.010 |  | <0.001 |
| **PDW** | 0.03 | -0.21 | 0.01 | 0.04 | 0.04 | 0.02 | 0.03 | 0.12 | 0.18 | 0.07 | 0.06 | 0.06 | 0.13 | -0.29 |  |
| 0.329 | <0.001 | 0.747 | 0.208 | 0.212 | 0.615 | 0.400 | <0.001 | <0.001 | 0.027 | 0.058 | 0.044 | <0.001 | <0.001 |

NLR – neutrophil-to-lymphocyte ratio, PLR – platelet-to-lymphocyte ratio, LMR – lymphocyte-to-monocyte ratio, WBC – absolute white blood cell count, LYMPH – absolute lymphocyte count, NEUT – absolute neutrophile count, AMC – absolute monocyte count, EO – absolute eosinophile count, BASO – absolute basophile count, RBC – absolute red blood cell count, HGB – hemoglobin concentration, HCT – hematocrit, RDW – red blood cell distribution width, PLT – absolute platelet count, PDW – platelet distribution width