**Supplementary Table 1** Univariate and multivariate Cox proportional hazard analysis of recurrence-free survival in patients with T1HG NMIBC

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Univariate** | |  | **Multivariate**  **(adjusted by T1a/b/c)** | |  | **Multivariate**  **(adjusted by T1m/e)** | |  | **Multivariate**  **(adjusted by COMB)** | |
| HR(95% CI) | *p* | HR(95% CI) | *p* |  | HR(95% CI) | *p* | HR(95% CI) | *p* |
| **Age** | 0.99(0.96-1.00) | 0.184 |  |  |  |  |  |  |  |  |  |
| **Gender (male as Ref.)** | 1.67(0.95-2.92) | 0.072 |  | 2.04(1.15-3.61) | **0.015** |  | 2.59(1.45-4.62) | **0.001** |  | 2.29(1.28-4.11) | **0.005** |
| **Smoking (no as Ref.)** | 0.79(0.48-1.30) | 0.356 |  |  |  |  |  |  |  |  |  |
| **Tumor number (single as Ref.)** | 2.54(1.54-4.18) | **<0.001** |  | 2.36(1.42-3.94) | **0.001** |  | 2.02(1.22-3.36) | **0.007** |  | 2.26(1.35-3.77) | **0.002** |
| **Tumor size (<3cm as Ref.)** | 0.61(0.28-1.34) | 0.219 |  |  |  |  |  |  |  |  |  |
| **LVI (no as Ref.)** | 2.59(1.12-6.00) | **0.026** |  | 4.32(1.76-10.6) | **0.001** |  | 3.60(1.48-8.74) | **0.005** |  | 4.52(1.83-11.1) | **0.001** |
| **CIS (no as Ref.)** | 2.01(1.23-3.28) | **0.005** |  | 1.92(1.14-3.22) | **0.014** |  | 1.70(1.01-2.89) | **0.048** |  | 1.72(1.02-2.92) | **0.043** |
| **VH (no as Ref.)** | 0.88(0.42-1.84) | 0.741 |  |  |  |  |  |  |  |  |  |
| **Re-TUBBT (no as Ref.)** | 1.28(0.69-2.38) | 0.439 |  |  |  |  |  |  |  |  |  |
| **Residual disease at Re-TURBt**  **(no as Ref.)** | 1.35(0.76-2.37) | 0.304 |  |  |  |  |  |  |  |  |  |
| **Instillation drugs (BCG as ref.)**  **BCG+Chemotherapy**  **Chemotherapy** | 1.04(0.54-2.03)  1.39(0.83-2.34) | 0.899  0.209 |  |  |  |  |  |  |  |  |  |
| **T1a/b/c substaging (T1a/b as Ref.)** | 2.46(1.51-3.99) | **<0.001** |  | 2.88(1.74-4.77) | **<0.001** |  | — | — |  | — | — |
| **T1 m/e substaging (T1m as Ref.)** | 3.88(1.78-8.47) | **0.001** |  | — | — |  | 2.82(1.26-6.31) | **0.012** |  | — | — |
| **COMB(T1a/b&T1m as Ref.)**  **T1a/b&T1e**  **T1c&T1e** | 3.16(1.41-7.08)  5.78(2.51-13.3) | **0.005**  **<0.001** |  | — | — |  | — | — |  | 2.42(1.04-5.65)  5.78(2.31-12.9) | **0.041**  **<0.001** |

LVI: lymphovascular invasion; CIS: carcinoma in situ; VH: variant histology; COMB: variable that combines T1a/b/c and T1m/e

**Supplementary Table 2** Univariate and multivariate Cox proportional hazard analysis of progression-free survival in patients with T1HG NMIBC

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** | **Univariate** | |  | **Multivariate**  **(adjusted by T1a/b/c)** | |  | | **Multivariate**  **(adjusted by T1m/e)** | |  | **Multivariate**  **(adjusted by COMB)** | |
| HR(95% CI) | *p* |  | HR(95% CI) | *p* |  | HR(95% CI) | | *p* | HR(95% CI) | *p* |
| **Age** | 1.00(0.97-1.03) | 0.881 |  |  |  |  |  | |  |  |  |  |
| **Gender (male as Ref.)** | 2.75(1.47-5.17) | **0.002** |  | 4.35(2.24-8.42) | **<0.001** |  | 4.69(2.43-9.57) | | **<0.001** |  | 4.28(2.21-8.28) | **<0.001** |
| **Smoking (no as Ref.)** | 0.58(0.30-1.12) | 0.106 |  |  |  |  |  | |  |  |  |  |
| **Tumor number (single as Ref.)** | 2.43(1.31-4.49) | **0.005** |  | 2.52(1.33-4.77) | **0.005** |  | 2.12(1.13-3.97) | | **0.020** |  | 2.52(1.33-4.76) | **0.005** |
| **Tumor size (<3cm as Ref.)** | 0.51(0.18-1.42) | 0.198 |  |  |  |  |  | |  |  |  |  |
| **LVI (no as Ref.)** | 3.99(1.69-9.44) | **0.002** |  | 12.1(4.55-32.4) | **<0.001** |  | 8.40(3.22-21.9) | | **<0.001** |  | 8.75(3.39-22.6) | **<0.001** |
| **CIS (no as Ref.)** | 2.19(1.18-4.07) | **0.012** |  | 2.81(1.41-5.62) | **0.004** |  | 2.34(1.18-4.74) | | **0.015** |  | 2.01(1.03-3.94) | **0.041** |
| **VH (no as Ref.)** | 1.56(0.73-3.34) | 0.255 |  |  |  |  |  | |  |  |  |  |
| **Re-TUBBT (no as Ref.)** | 1.19(0.56-2.57) | 0.642 |  |  |  |  |  | |  |  |  |  |
| **Residual disease at Re-TURBt**  **(no as Ref.)** | 1.31(0.65-2.65) | 0.447 |  |  |  |  |  | |  |  |  |  |
| **Instillation drugs (BCG as ref.)**  **BCG+Chemotherapy**  **Chemotherapy** | 1.06(0.47-2.34)  1.29(0.68-2.47) | 0.884  0.437 |  |  |  |  |  | |  |  |  |  |
| **T1a/b/c substaging (T1a/b as Ref.)** | 2.31(1.27-4.21) | **0.006** |  | 2.72(1.45-5.12) | **0.002** |  | — | | — |  | — | — |
| **T1 m/e substaging (T1m as Ref.)** | 3.23(1.27-8.16) | **0.013** |  | — | — |  | 2.88(1.09-7.65) | | **0.033** |  | — | — |
| **COMB(T1a/b&T1m as Ref.)**  **T1a/b&T1e**  **T1c&T1e** | 2.75(1.05-7.18)  4.92(1.82-13.4) | **0.039**  **0.002** |  | — | — |  | — | | — |  | 2.34(0.85-6.39)  5.23(1.83-14.9) | **0.069**  **0.003** |

LVI: lymphovascular invasion; CIS: carcinoma in situ; VH: variant histology; COMB: variable that combines T1a/b/c and T1m/e