**Supplementary Data**

**Table S1:** Disease-free survival (DFS), and overall survival (OS) for patients with pre-neoadjuvant chemotherapy (NAC) neutrophil-to-lymphocyte ratio (NLR)>3 (high) or NLR≤3 (low), separated by stage of disease (stage II or stage III).Hazard ratios are adjusted for gender and age at diagnosis, and are estimated on stratified Cox regression models (stratified by stage of disease).

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| --- | --- | --- | --- |
|  |  | **DFS,** *median months (95% CI)\** | **OS,***median months (95% CI)\*\** |
| **Stage II** | **Baseline****NLR>3 (high)****n=119** | 16.9(10.3-28.0) | 22.6(16.5-40.9) |
| **Baseline****NLR≤3 (low)****n=143** | 34.2(23.6-43.4) | 40.4(30.1-53.6) |
| **Stage III** | **Baseline****NLR>3 (high)****n=48** | 10.9(8.5-64.0) | 14.4(10.9-80.2) |
| **Baseline****NLR≤3 (low)****n=41** | 54.6(11.3-NR\*\*\*) | 105.3(32.3-NR) |

\* HR=0.61 (95% CI: 0.44-0.85); p<0.001

\*\* HR=0.54 (95% CI: 0.38-0.77); p<0.001

\*\*\* not yet reached

**Table S2:** Prognostic role of the change in the neutrophil-to-lymphocyte ratio (NLR; four groups) on outcomes (disease-free survival [DFS] and overall survival [OS]), separated by stage of disease (stage II or stage III).Hazard ratios are adjusted for gender and age at diagnosis, and are estimated on stratified Cox regression models (stratified by stage of disease).

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|  |  | **DFS,** *median months (95% CI)* | **OS,***median months (95% CI)* |
| **Stage II** | **HIGH to HIGH****n=70** | 10.3(8.9-28.9) | 21.1(14.1-NR\*) |
| **HIGH to LOW****n=27** | 36.2(22.6-NR)\*\* | 40.9(28.1-NR)# |
| **LOW to HIGH****n=39** | 23.6(10.0-NR)\*\*\* | 32.3(20.2-NR)## |
| **LOW to LOW****n=81** | 39.5(31.0-NR)\*\*\*\* | 45.5(37.7-NR)### |
| **Stage III** | **HIGH to HIGH****n=25** | 8.5(6.2-NR) | 10.9(8.2-NR) |
| **HIGH to LOW****n=16** | 12.6(11.5-NR)\*\* | 20.6(13.3-NR)# |
| **LOW to HIGH****n=13** | NR(9.0-NR)\*\*\* | NR(31.9-NR)## |
| **LOW to LOW****n=25** | 54.6(11.3-NR)\*\*\*\* | 105.3(19.1-NR)### |

\* not yet reached

\*\* HR=0.50 (95% CI: 0.29-0.87); p<0.001

\*\*\* HR=0.73 (95% CI: 0.43-1.25); p=0.25

\*\*\*\* HR=0.44 (95% CI: 0.28-0.68); p<0.001

# HR=0.50 (95% CI: 0.28-0.90); p=0.02

## HR=0.70 (95% CI: 0.39-1.25); p=0.23

### HR=0.36 (95% CI: 0.22-0.59); p<0.001

**Table S3:** Prognostic role of the change in the neutrophil-to-lymphocyte ratio (NLR; two groups) on outcomes (disease-free survival [DFS] and overall survival [OS]), separated by stage of disease (stage II or stage III).Hazard ratios are adjusted for gender and age at diagnosis, and are estimated on stratified Cox regression models (stratified by stage of disease).

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|  |  | **DFS,** *median months (95% CI)\** | **OS,***median months (95% CI)\*\** |
| **Stage II** | **Poor-risk****n=70** | 10.3(8.9-28.9) | 21.1(14.1-NR\*\*\*) |
| **Favourable-risk****n=147** | 34.8(26.7-43.4) | 41.2(33.0-55.1) |
| **Stage III** | **Poor-risk****n=25** | 8.5(6.2-NR) | 10.9(8.2-NR) |
| **Favourable-risk****n=54** | 40.6(12.5-NR) | 105.3(20.6-NR) |

\* HR=0.51 (95% CI: 0.35-0.74); p<0.001

\*\* HR=0.46 (95% CI: 0.30-0.69); p<0.001

\*\*\* not yet reached

**Table S4:** Effects of stratification by baseline neutrophil-to-lymphocyte ratio (NLR) or mid-neoadjuvant chemotherapy (NAC) NLR on outcomes (overall survival [OS] and disease-free survival [DFS]). Hazard ratios are adjusted for gender, stage of disease, and age at diagnosis, and estimated on stratified Cox regression models.

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|  | **DFS****HR****(95% CI)****p-value** | **OS****HR****(95% CI)****p-value** |
| **Mid-NAC NLR, stratified by baseline NLR** | 0.56 (0.38-0.83)p<0.001 | 0.51 (0.33-0.77)p<0.001 |
| **Baseline NLR, stratified by mid-NAC NLR** | 0.77(0.53-1.12)p=0.17 | 0.71(0.47-1.09)p=0.12 |

**Table S5:** A landmark analysis of the prognostic role of the change in the neutrophil-to-lymphocyte ratio (NLR; four groups) on outcomes (disease-free survival [DFS] and overall survival [OS]). Since the mid-neoadjuvant chemotherapy (NAC) NLR was obtained after the 2nd cycle of NAC, 2.5 months were subtracted from the OS and DFS of all patients. Hazard ratios are adjusted for gender, initial stage, and age at diagnosis, as compared with group HIGH to HIGH NLR.

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| --- | --- | --- | --- | --- |
|  | **DFS,***median months* *(95% CI)* | HR(95% CI)p-value | **OS*,****median months (95% CI)* | HR(95% CI)p-value |
| **HIGH to HIGH****n=95** | 7.5 (6.1-24.1) |  | 14.4 (10.6-27.3) |  |
| **HIGH to LOW****n=43** | 33.7 (15.2-NR) | 0.53(0.31-0.90)p=0.02 | 38.4 (20.1-NR) | 0.49(0.27-0.87)p=0.01 |
| **LOW to HIGH****n=52** | 21.1 (8.2-NR) | 0.72(0.42-1.24)p=0.23 | 34.5 (21.9-NR) | 0.68(0.39-1.21)p=0.19 |
| **LOW to LOW****n=106** | 38.5 (30.2-66.5) | 0.43(0.28-0.67)p<0.001 | 49.5 (40.9-NR\*) | 0.36(0.22-0.58)p<0.001 |

**\*** not yet reached