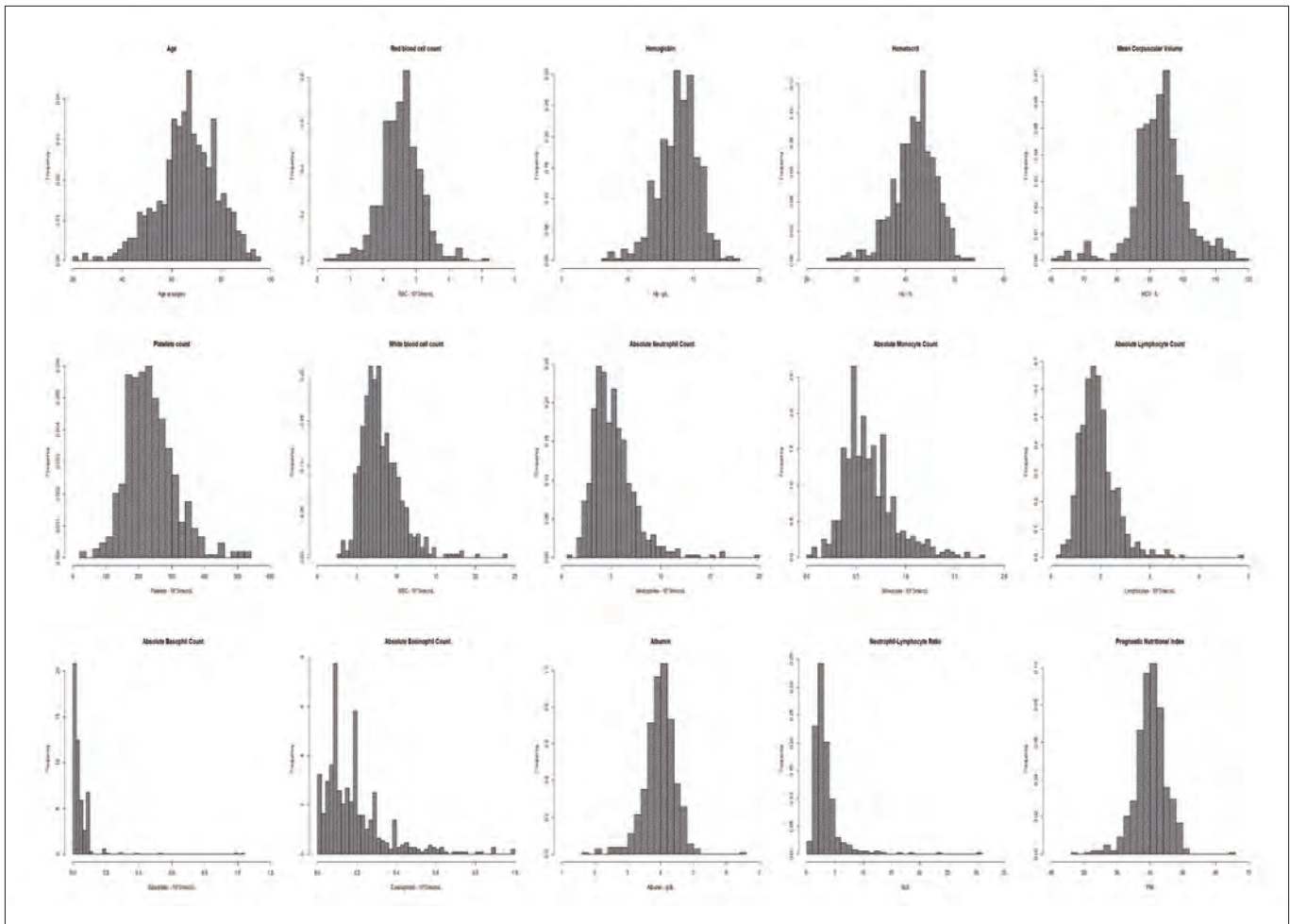
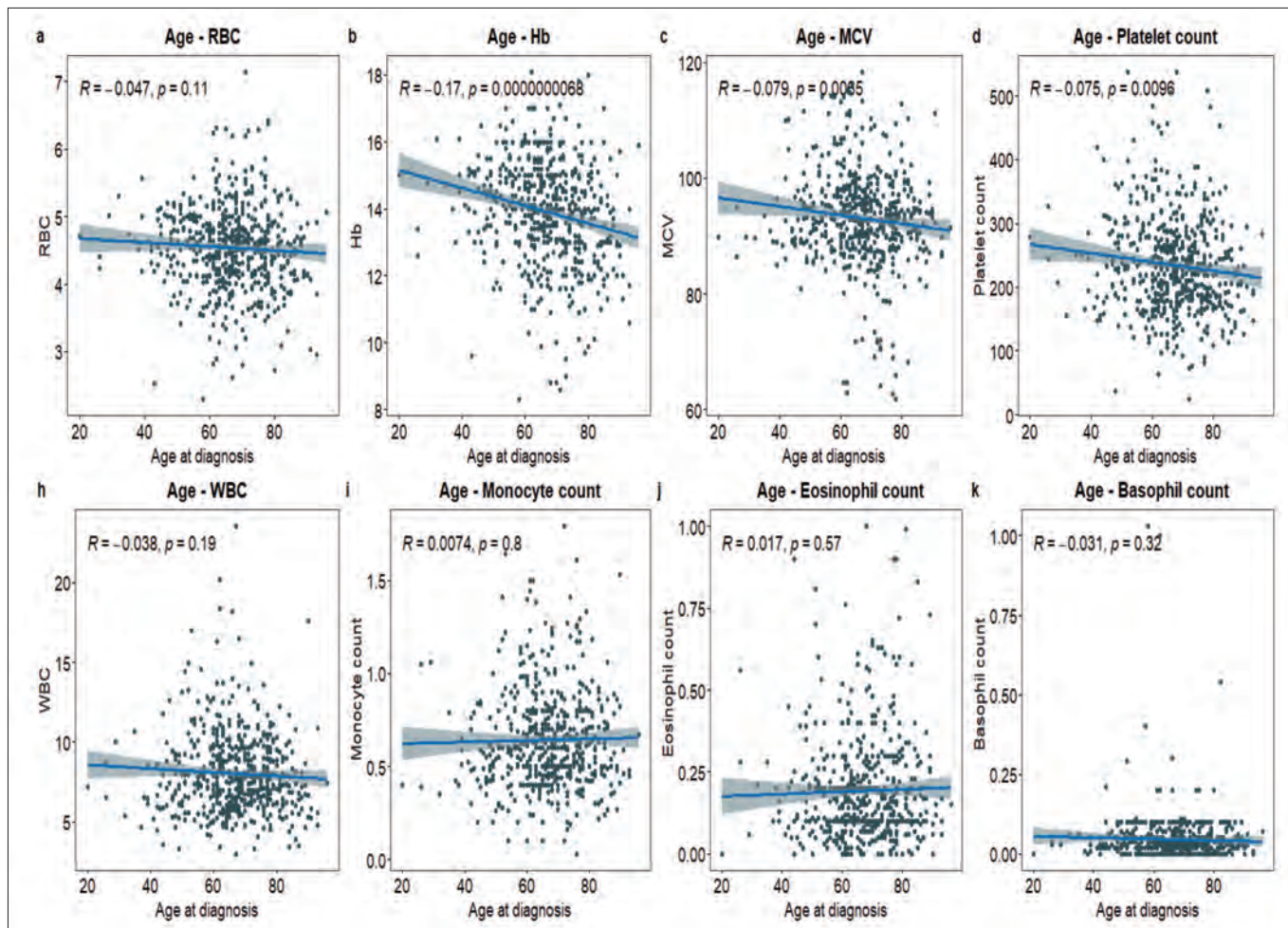


## Supplementary material



**Figure S1.** Histograms showing distribution of age at diagnosis, pre-operative blood parameters and derived prognostic indices (NLR, PNI). None of the variables investigated showed a normal distribution at Shapiro-Wilk test.



**Figure S2.** Scatter plots of Kendall rank correlation showing the association between age and pre-operative blood parameters.

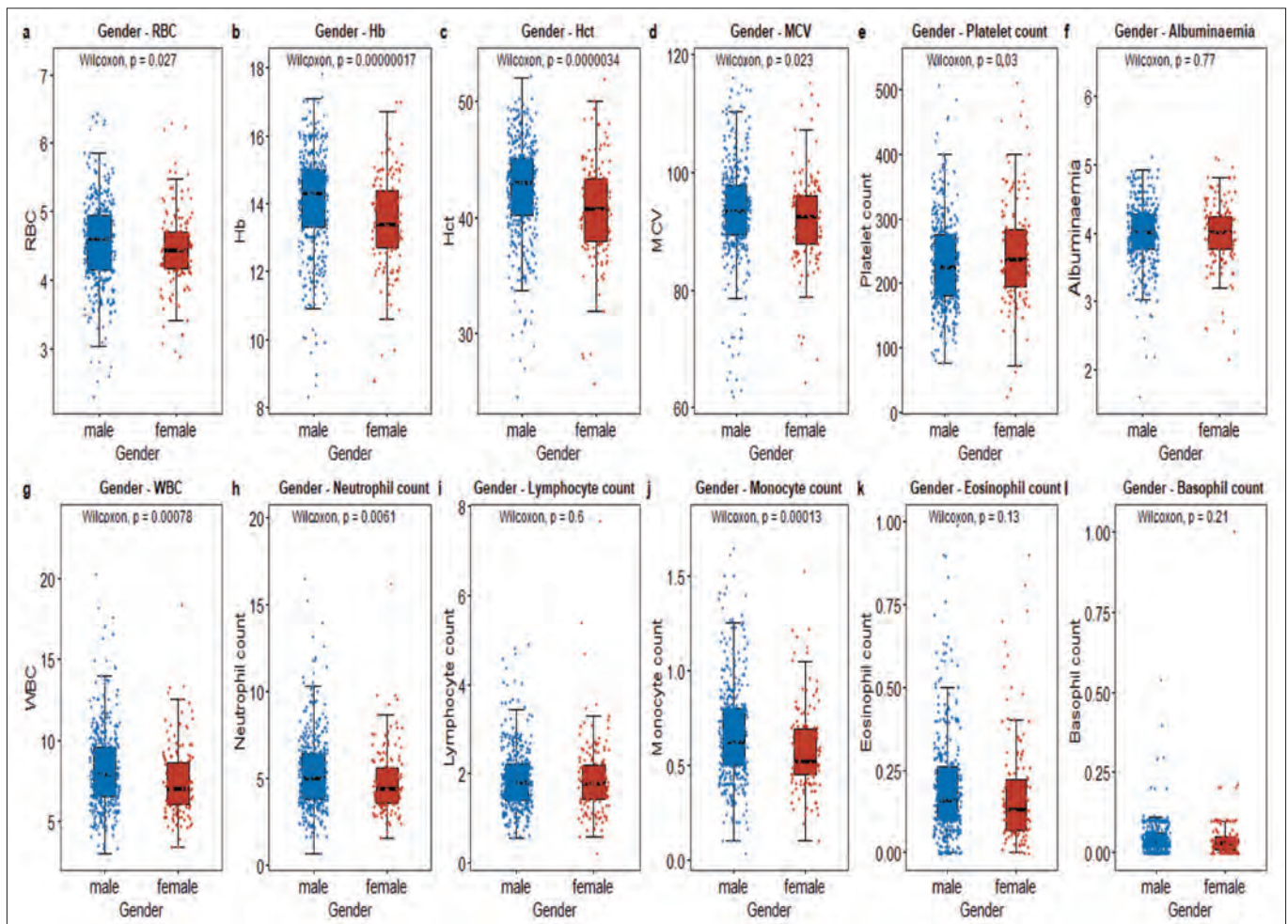
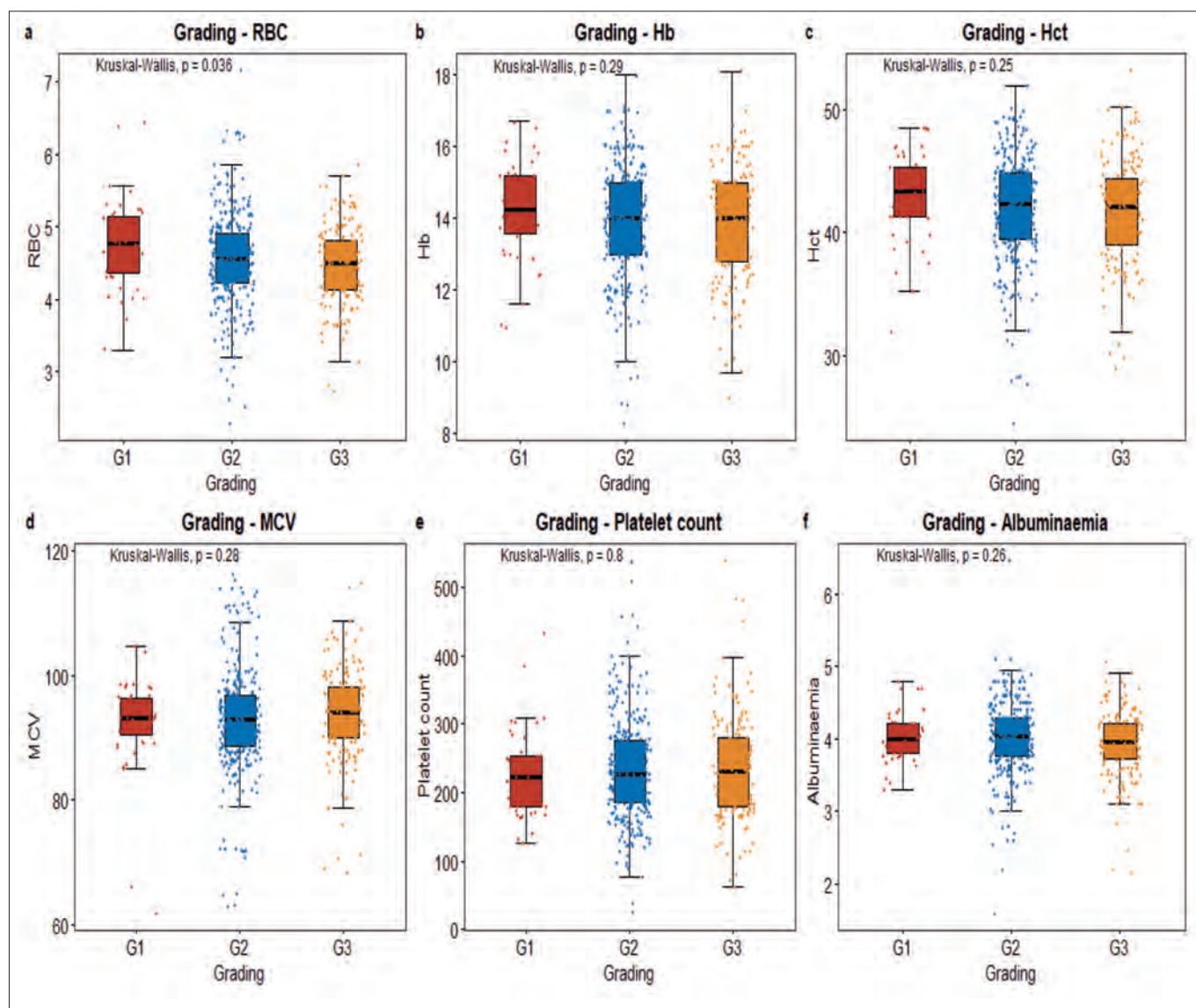
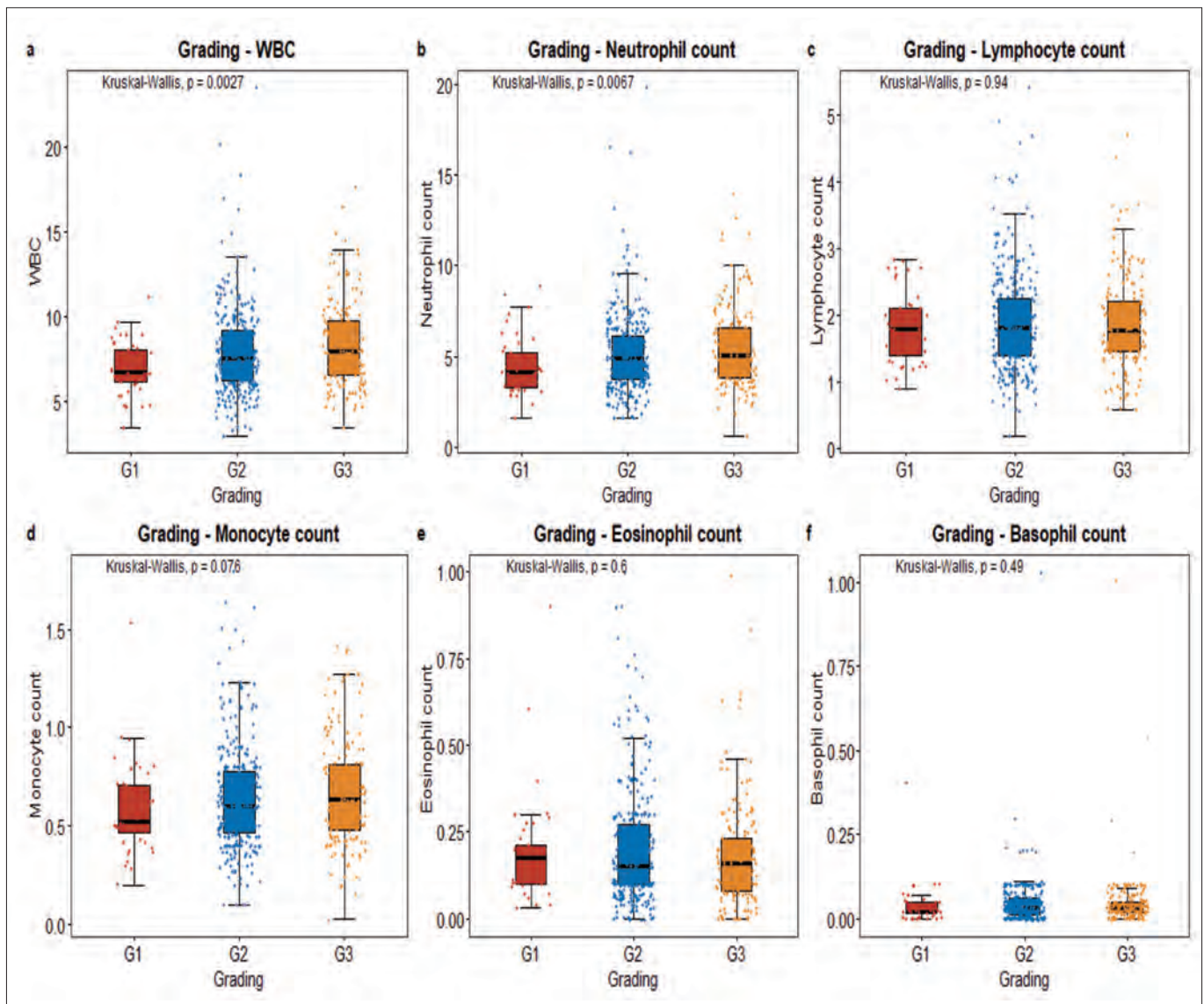


Figure S3. Box plots showing the correlation between gender and pre-operative blood parameters tested through a Wilcoxon-Mann-Whitney test.

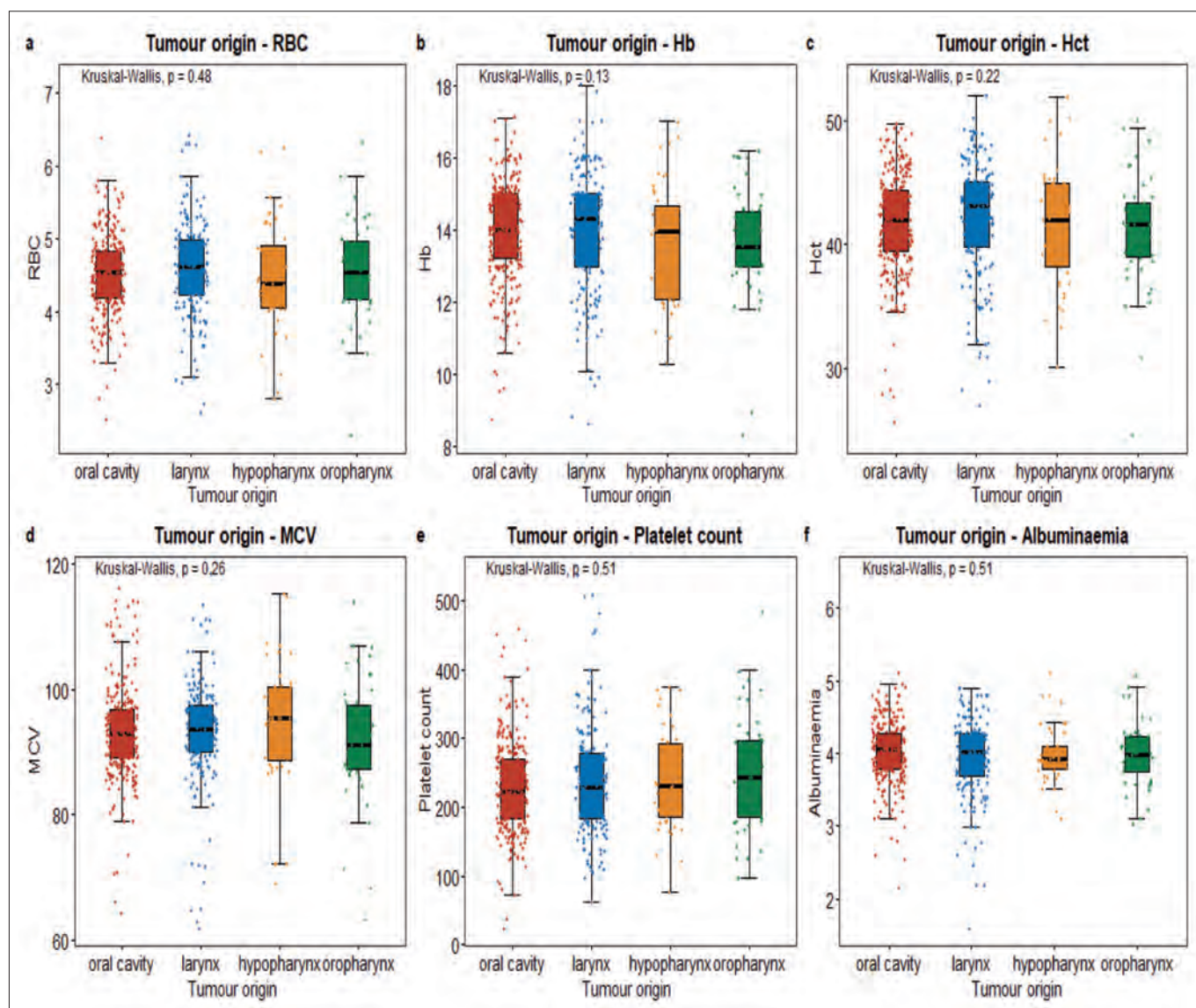




**Figure S4.** Box plots showing the correlation between tumor grade and pre-operative a) red blood cell count (RBC,  $10^3/\text{microl}$ ); b) haemoglobin (Hb, g/L); c) hematocrit (Hct, %); d) mean corpuscular volume (MCV, fL); e) platelet count ( $10^3/\text{microl}$ ) and f) albuminaemia (g/dL), tested through a Kruskal-Wallis test.

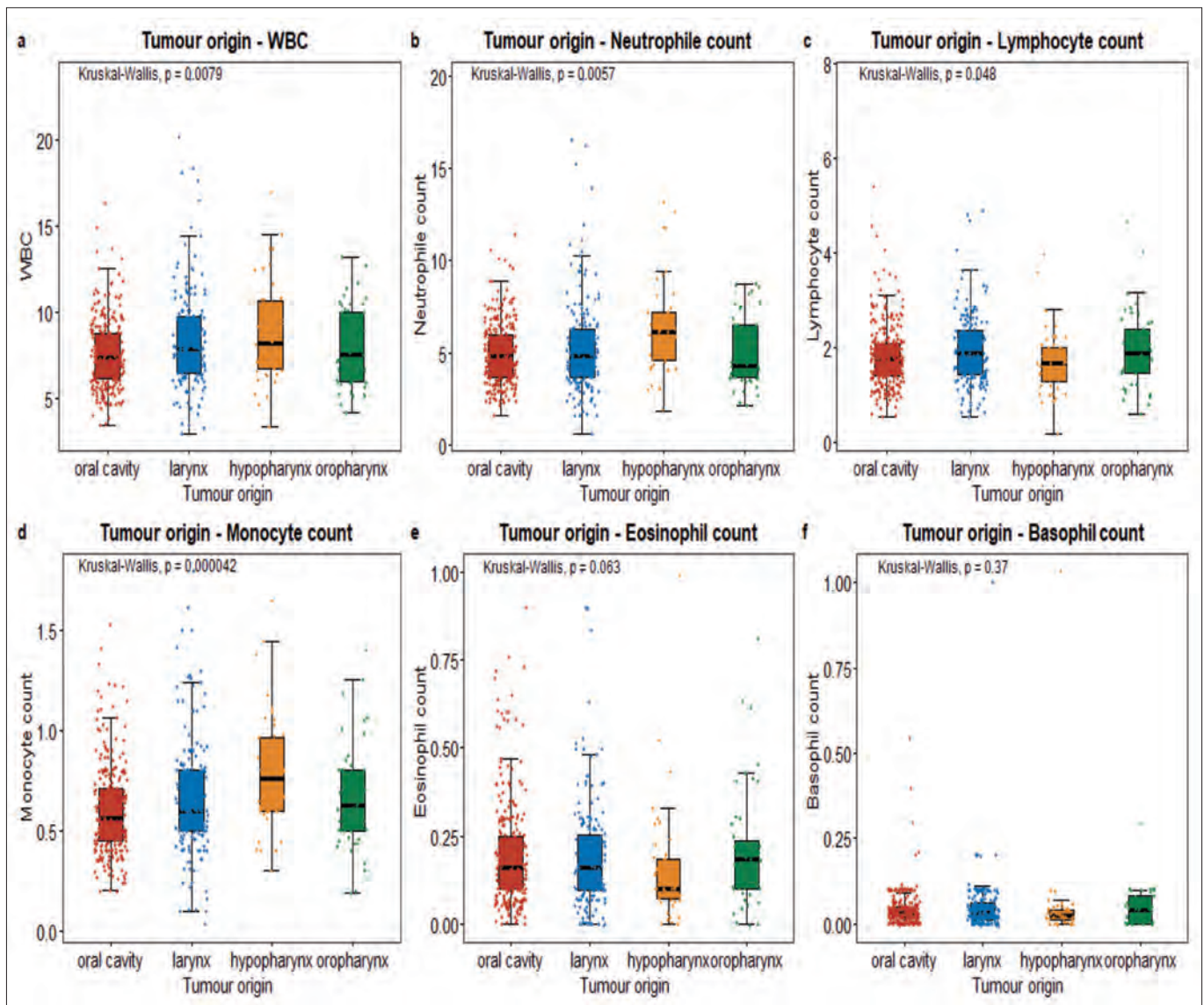


**Figure S5.** Box plots showing the correlation between tumor grade and pre-operative a) white blood cell count (WBC,  $10^3/\text{microL}$ ); b) neutrophil count ( $10^3/\text{microL}$ ); c) lymphocyte count ( $10^3/\text{microL}$ ); d) monocyte count ( $10^3/\text{microL}$ ); e) eosinophil count ( $10^3/\text{microL}$ ); f) basophil count ( $10^3/\text{microL}$ ), tested through a Kruskal-Wallis test.

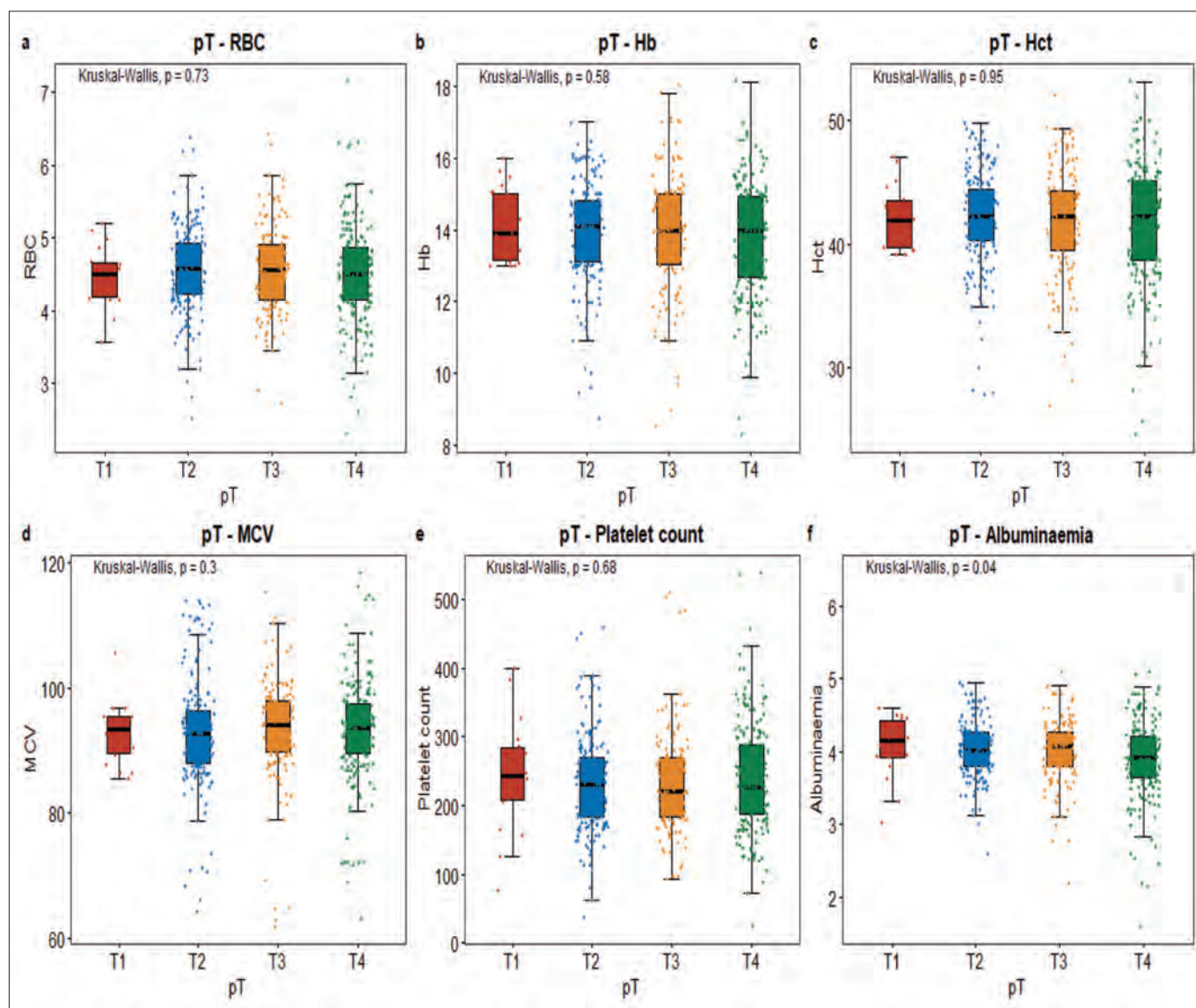


**Figure S6.** Box plots showing the correlation between tumour site of origin and pre-operative a) red blood cell count (RBC,  $10^3/\text{microL}$ ); b) haemoglobin (Hb, g/L); c) haematocrit (Hct, %); d) mean corpuscular volume (MCV, fL); e) platelet count ( $10^3/\text{microL}$ ) and f) albuminaemia (g/dL), tested through a Kruskal-Wallis test.



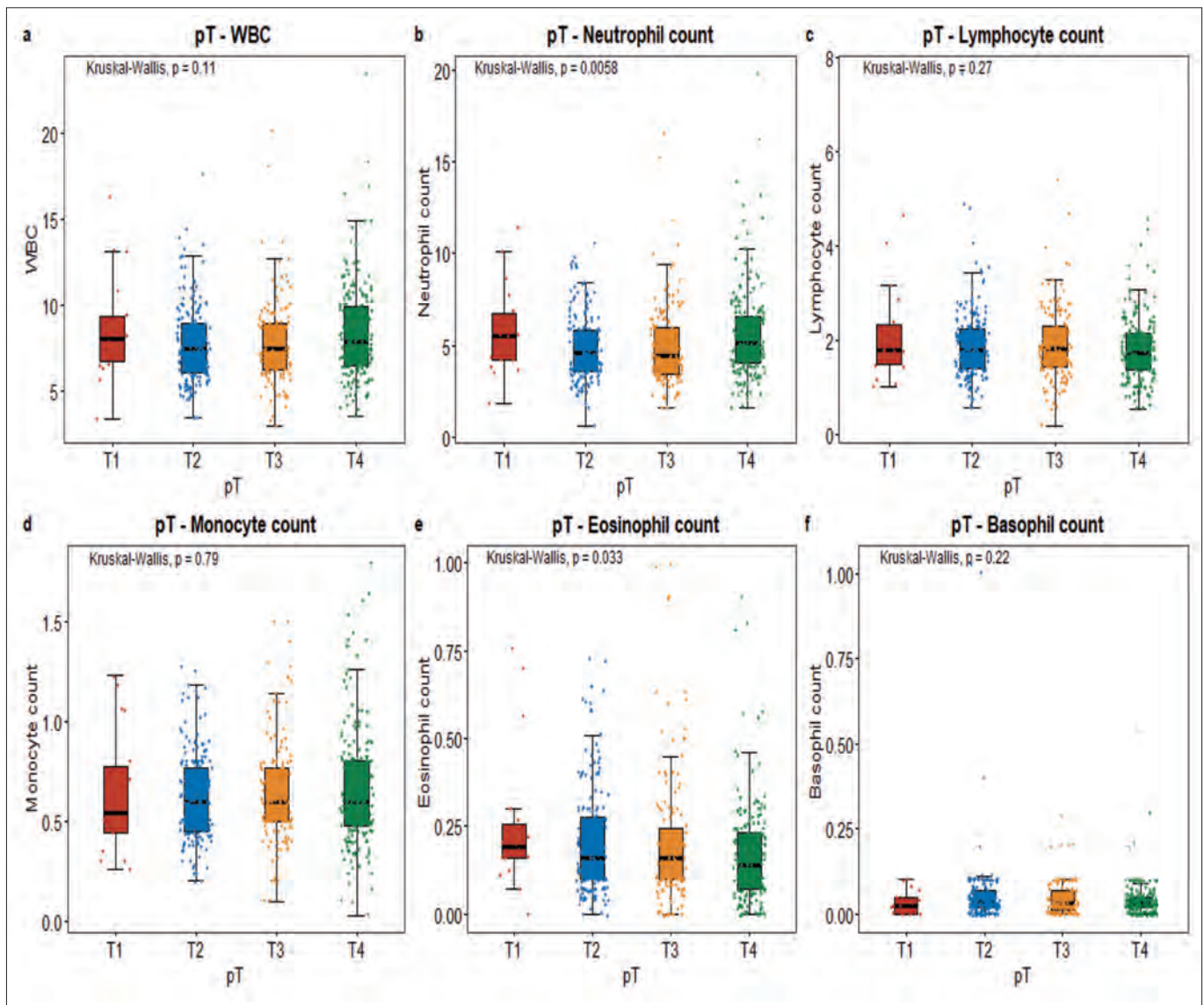


**Figure S7.** Box plots showing the correlation between tumour site of origin and pre-operative a) white blood cell count (WBC, 103/microL); b) neutrophil count (103/microL); c) lymphocyte count (103/microL); d) monocyte count (103/microL); e) eosinophil count (103/microL); f) basophil count (103/microL), tested through a Kruskal-Wallis test.

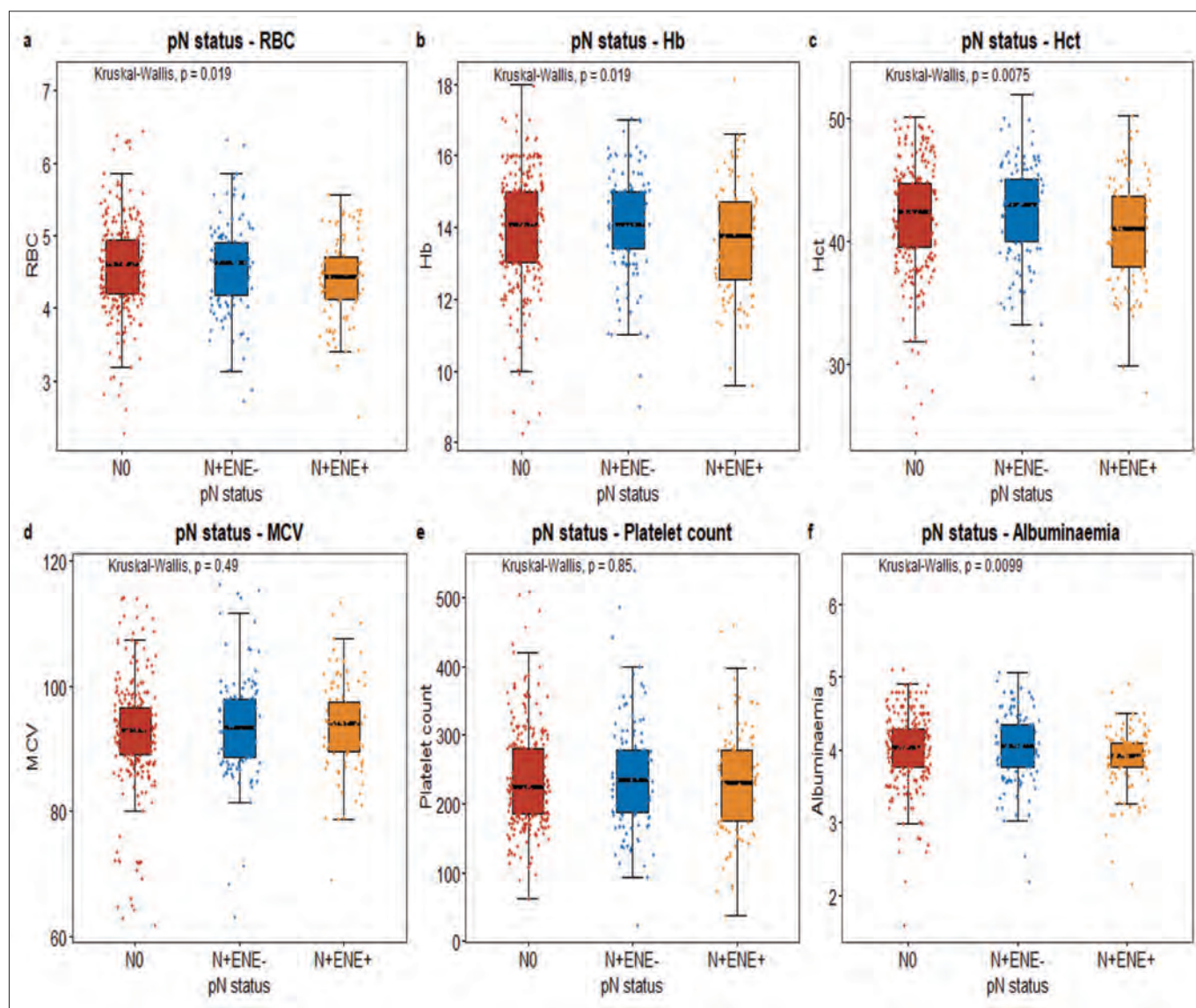


**Figure S8.** Box plots showing the correlation between tumor pT classification and pre-operative a) red blood cell count (RBC, 10<sup>3</sup>/microL); b) haemoglobin (Hb, g/L); c) haematocrit (Hct, %); d) mean corpuscular volume (MCV, fL); e) platelet count (10<sup>3</sup>/microL) and f) albuminaemia (g/dL), tested through a Kruskal-Wallis test.

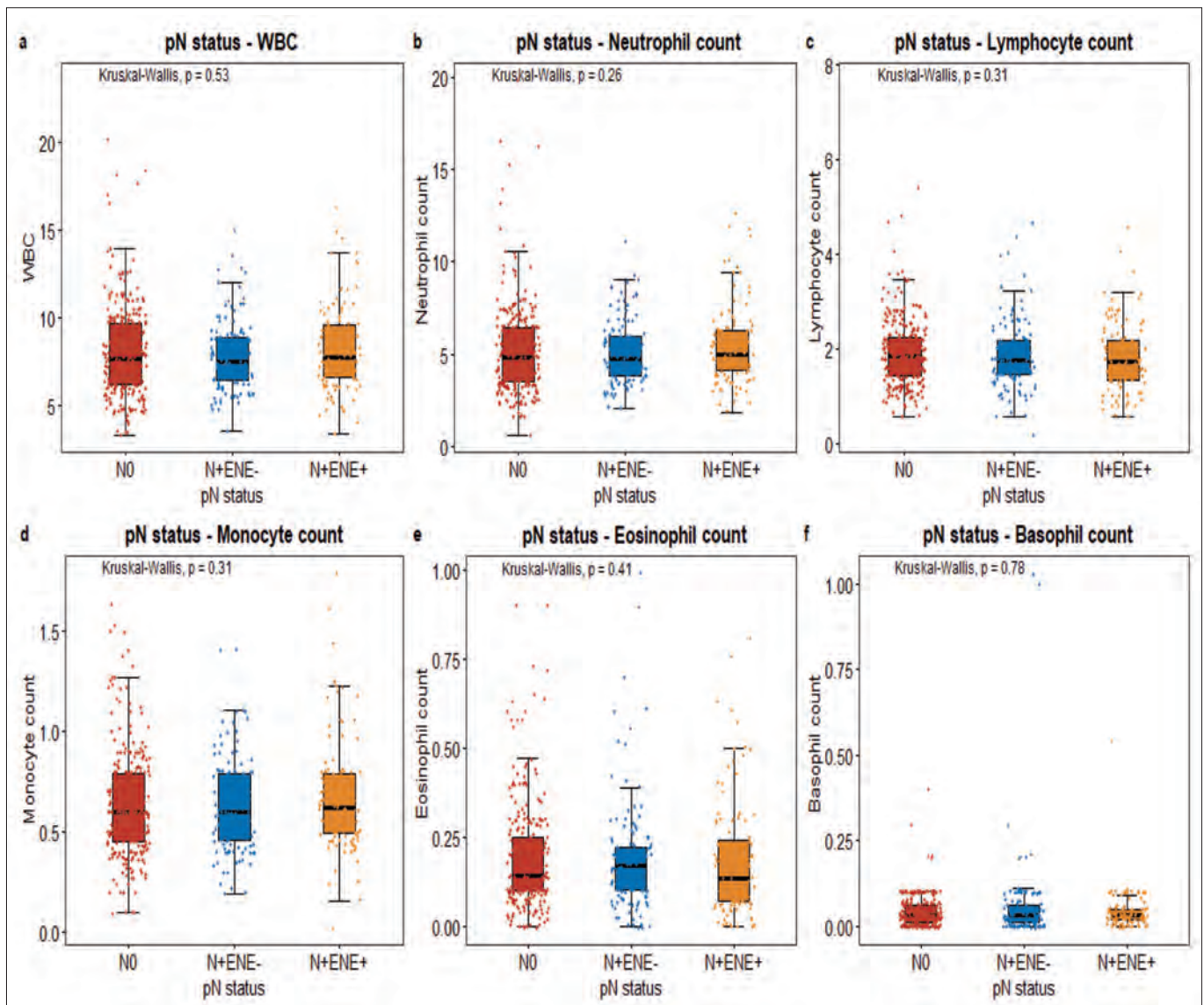




**Figure S9.** Box plots showing the correlation between tumor pT classification and pre-operative a) white blood cell count (WBC,  $10^3/\text{microL}$ ); b) neutrophil count ( $10^3/\text{microL}$ ); c) lymphocyte count ( $10^3/\text{microL}$ ); d) monocyte count ( $10^3/\text{microL}$ ); e) eosinophil count ( $10^3/\text{microL}$ ); f) basophil count ( $10^3/\text{microL}$ ), tested through a Kruskal-Wallis test.

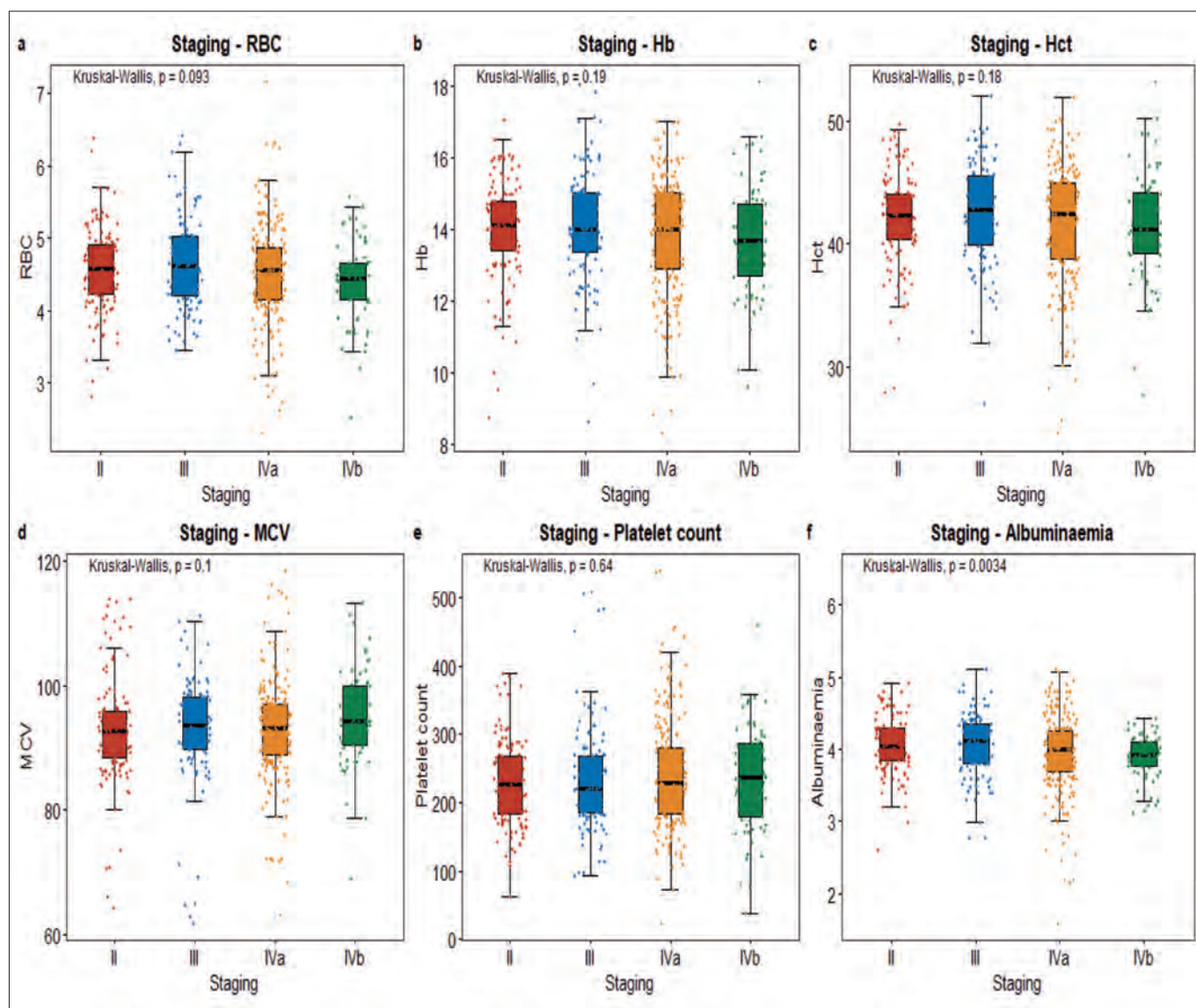


**Figure S10.** Box plots showing the correlation between nodal status and pre-operative a) red blood cell count (RBC,  $10^3/\text{microL}$ ); b) haemoglobin (Hb, g/L); c) hematocrit (Hct, %); d) mean corpuscular volume (MCV, fL); e) platelet count ( $10^3/\text{microL}$ ) and f) albuminaemia (g/dL), tested through a Kruskal-Wallis test.

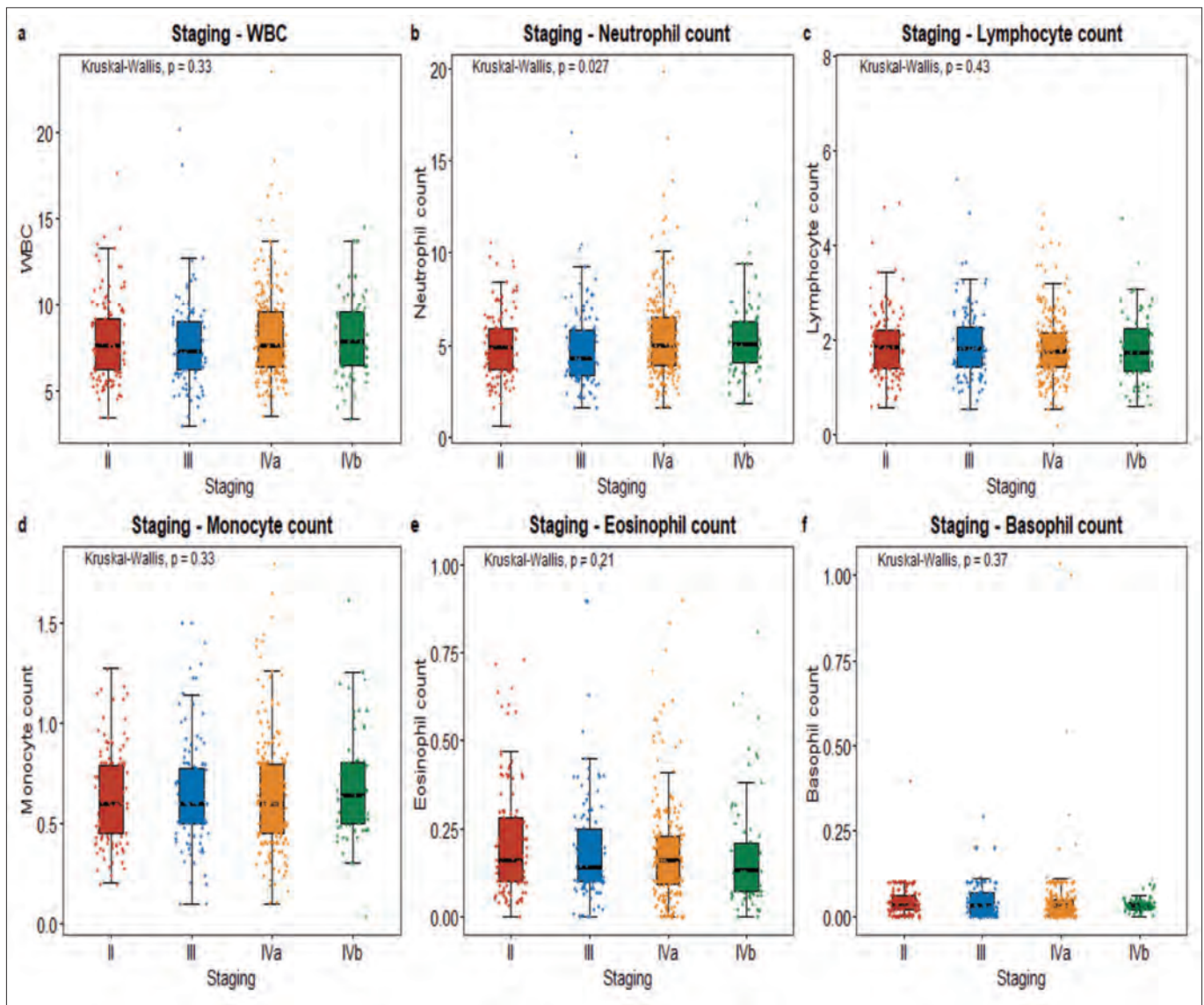


**Figure S11.** Box plots showing the correlation between nodal status and pre-operative a) white blood cell count (WBC,  $10^3/\text{microl}$ ); b) neutrophil count ( $10^3/\text{microl}$ ); c) lymphocyte count ( $10^3/\text{microl}$ ); d) monocyte count ( $10^3/\text{microl}$ ); e) eosinophil count ( $10^3/\text{microl}$ ); f) basophil count ( $10^3/\text{microl}$ ), tested through a Kruskal-Wallis test.

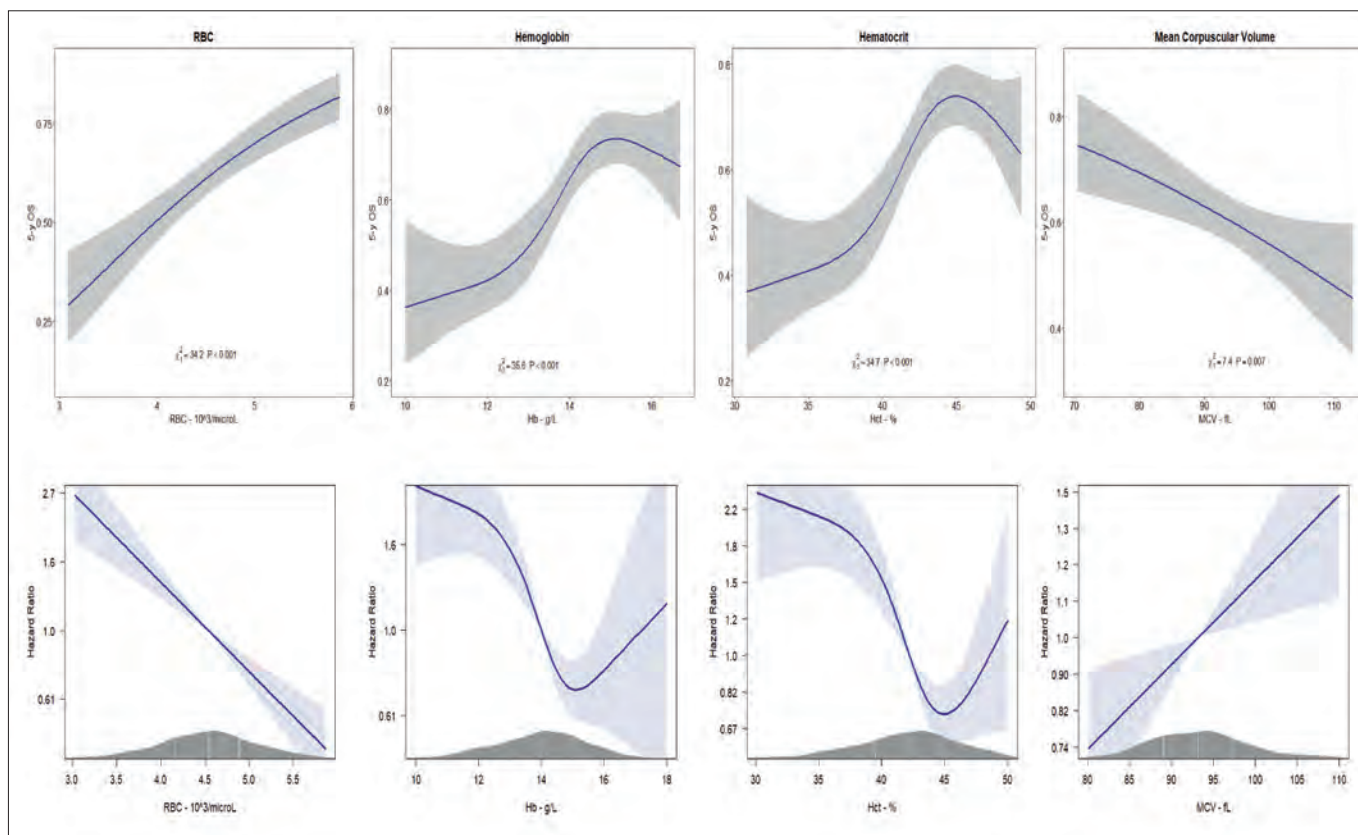




**Figure S12.** Box plots showing the correlation between tumour stage and pre-operative a) red blood cell count (RBC,  $10^3/\text{microL}$ ); b) haemoglobin (Hb, g/L); c) hematocrit (Hct, %); d) mean corpuscular volume (MCV, fL); e) platelet count ( $10^3/\text{microL}$ ) and f) albuminaemia (g/dL), tested through a Kruskal-Wallis test.

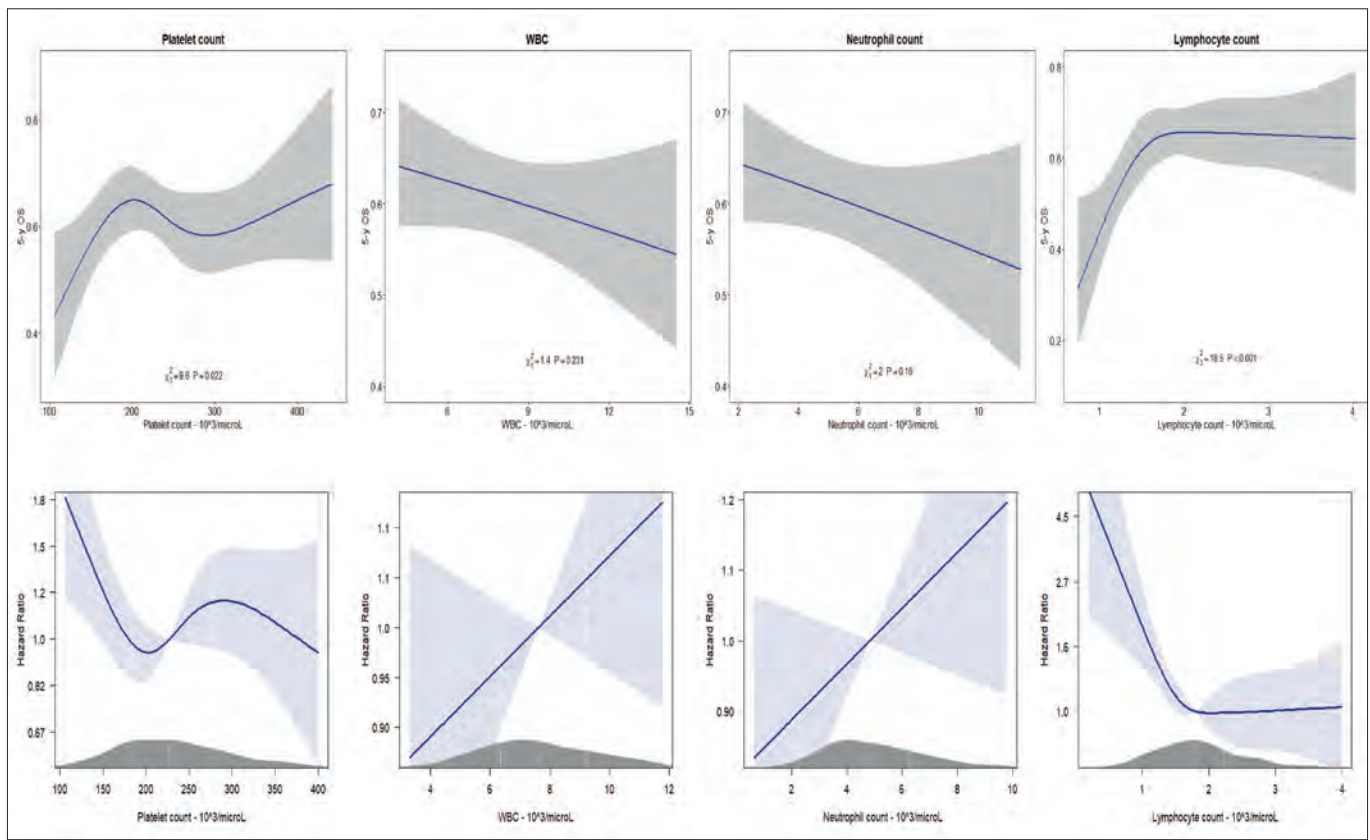


**Figure S13.** Box plots showing the correlation between tumour stage and pre-operative a) white blood cell count (WBC,  $10^3/\text{microL}$ ); b) neutrophil count ( $10^3/\text{microL}$ ); c) lymphocyte count ( $10^3/\text{microL}$ ); d) monocyte count ( $10^3/\text{microL}$ ); e) eosinophil count ( $10^3/\text{microL}$ ); f) basophil count ( $10^3/\text{microL}$ ), tested through a Kruskal-Wallis test.

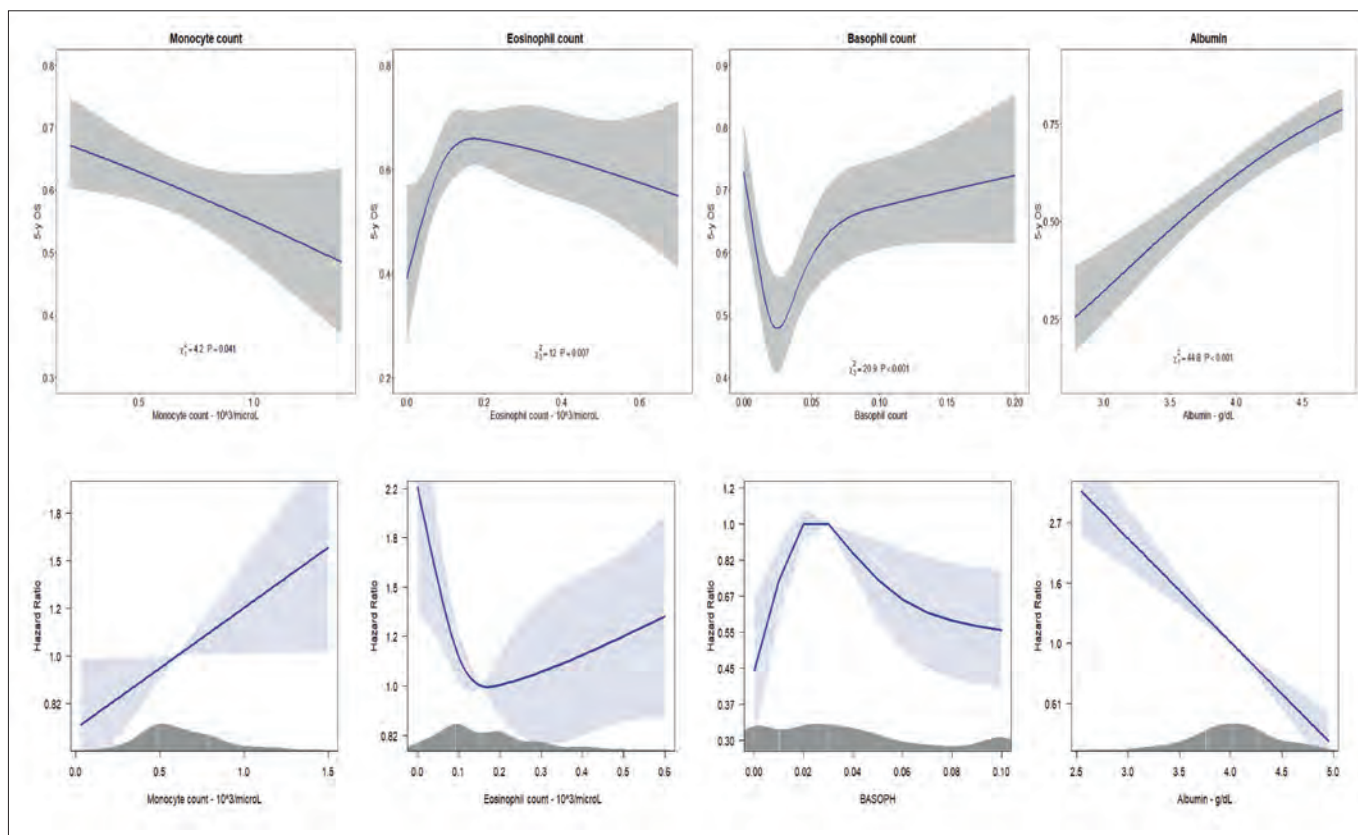


**Figure S14.** Linear (RBC, MCV) and non-linear (Hb, Hct) effect on 5-year OS (first row) and change in HR (second row) with relative 95% CI. Higher chances of 5-year OS (lower HR) were observed for patients with higher values of RBC, Hb, Hct and lower values of MCV.





**Figure S15.** Linear (WBC, neutrophil count) and non-linear (platelet and lymphocyte count) effect on 5-year OS (first row) and change in HR (second row) with relative 95% CI. Higher chances of 5-year OS (lower HR) were observed for patients with higher values of platelets and lymphocyte count, whereas no significant prognostic influence was observed for WBC and neutrophil count.



**Figure S16.** Linear (monocyte count, albumin) and non-linear (eosinophil and basophil count) effect on 5-year OS (first row) and change in HR (second row) with relative 95% CI. Higher chances of 5-year OS (lower HR) were observed for patients with lower values of platelets and basophil count and higher values of eosinophil count and albumin.

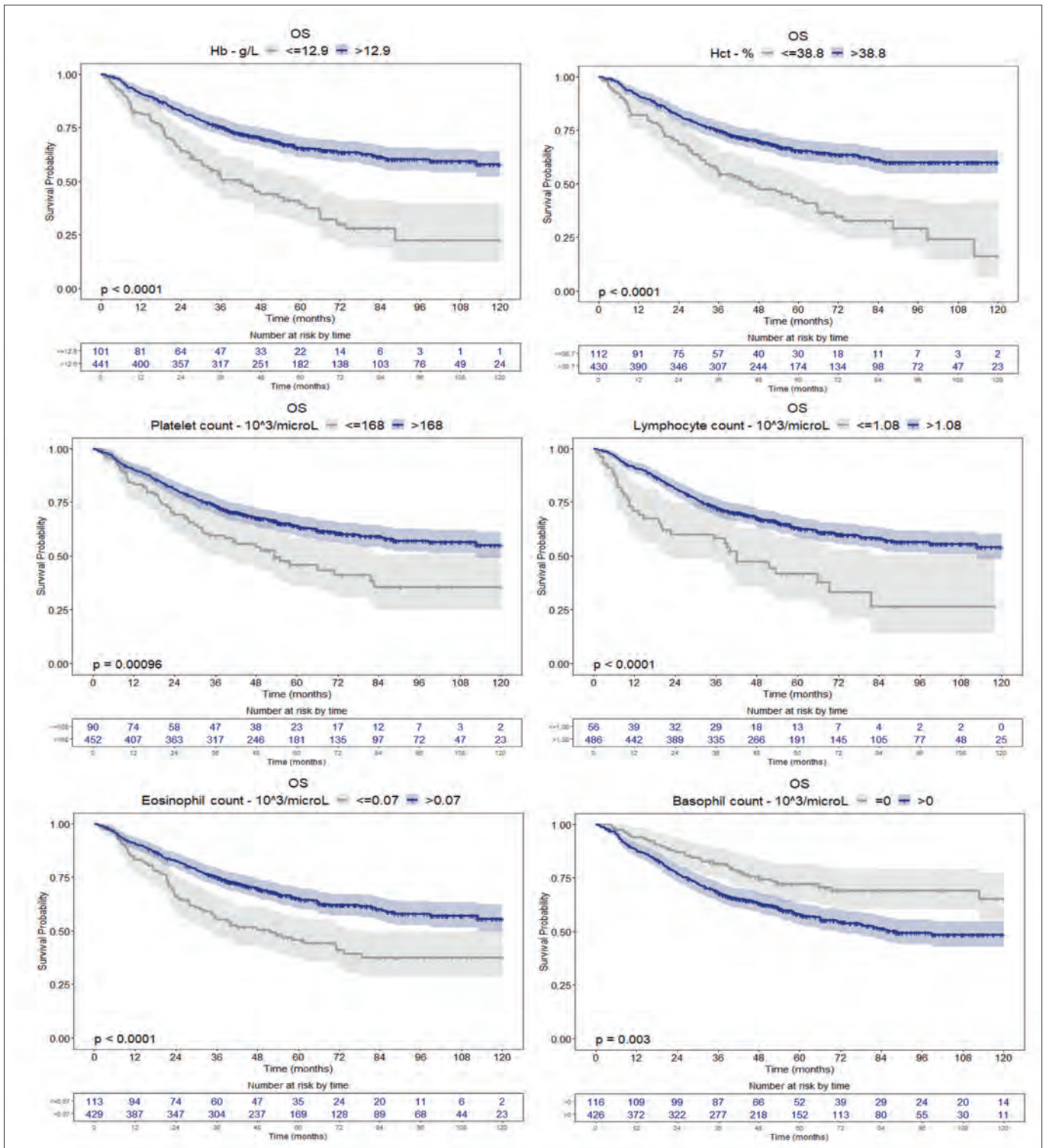
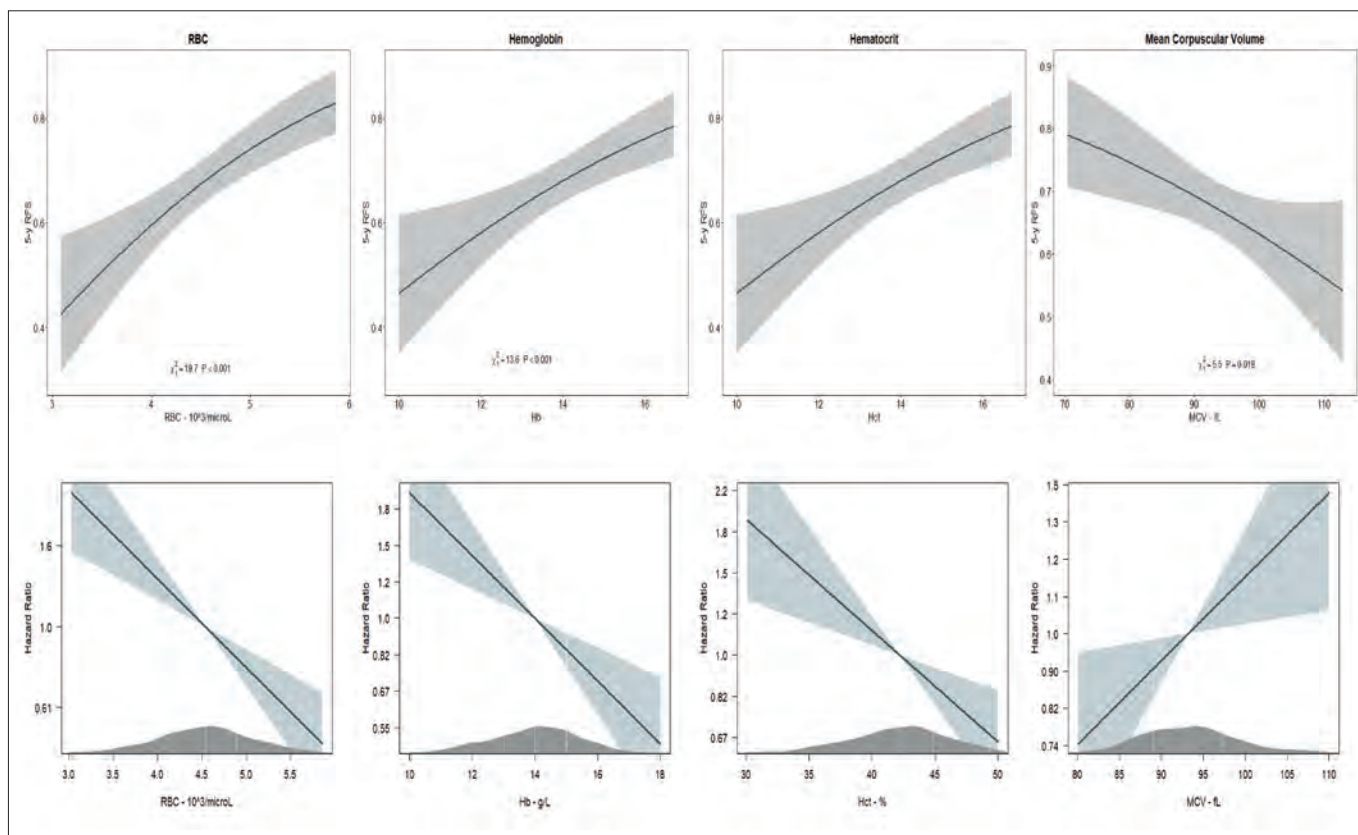
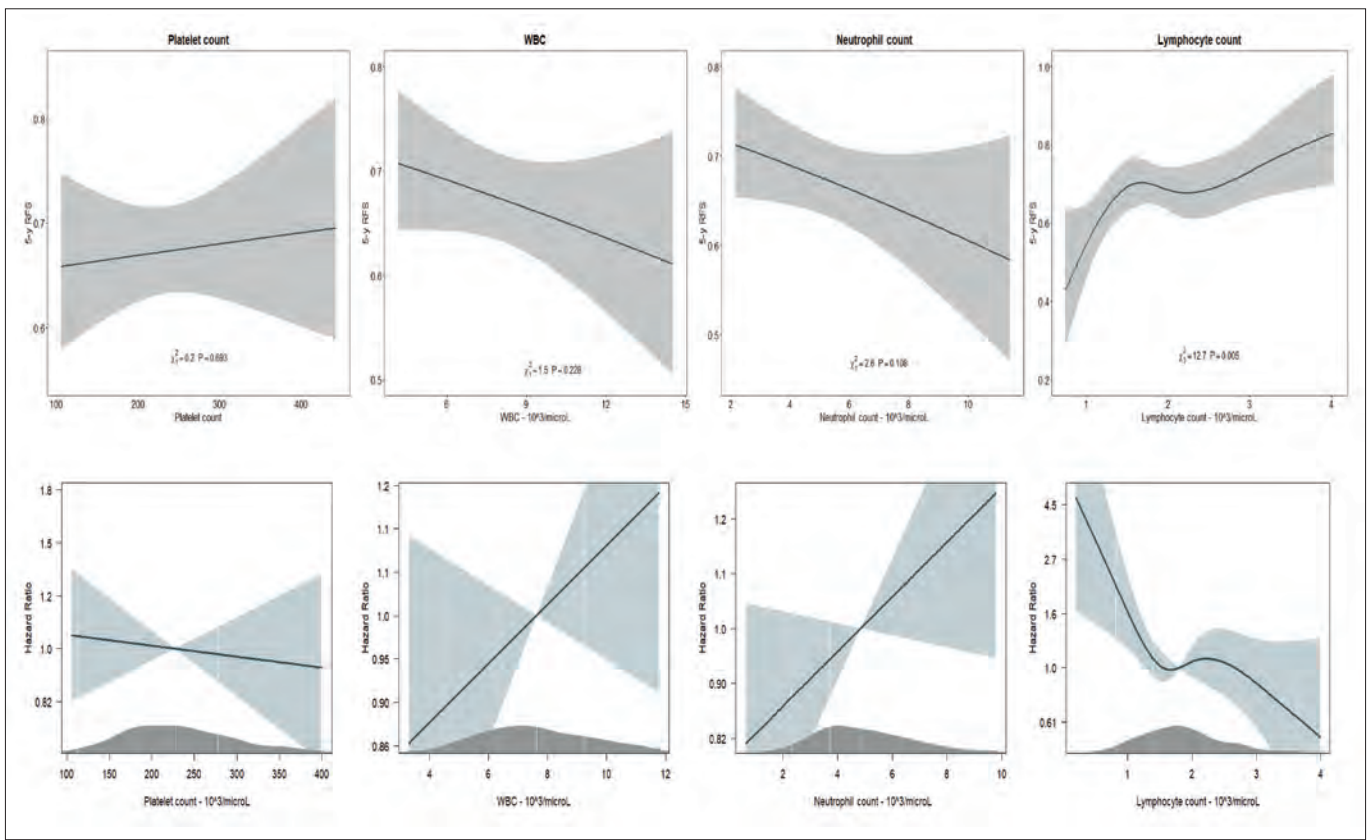


Figure S17. Kaplan-Meier survival curves with relative 95% CI and table of patients at risk depicting overall survival according to the pre-operative blood markers showing a non-linear effect and categorised into the prognostic classes found at the X-tile analysis.

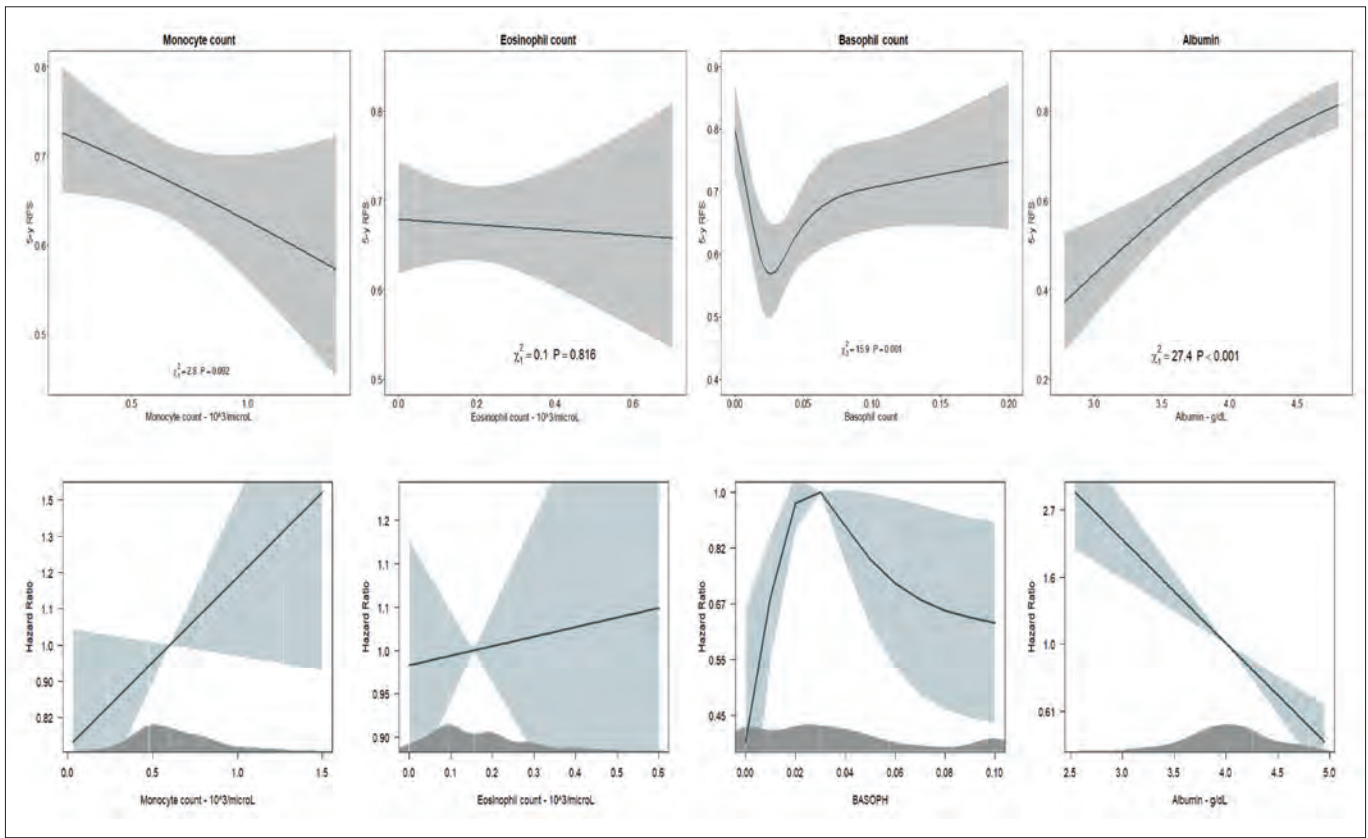




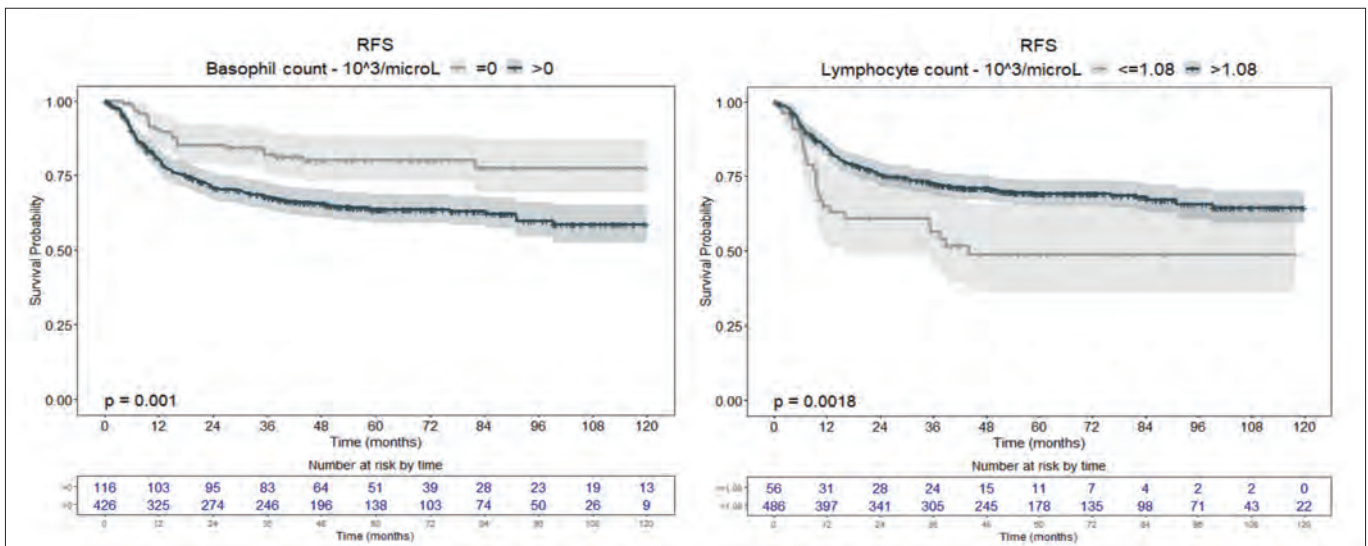
**Figure S18.** Linear (RBC, Hb, Hct, MCV) effect on 5-year RFS (first row) and change in HR (second row) with relative 95% CI. Higher chances of 5-year RFS (lower HR) were observed for patients with higher values of RBC, Hb, Hct and lower values of MCV.



**Figure S19.** Linear (platelet count, WBC, neutrophil count) and non-linear (lymphocyte count) effect on 5-year RFS (first row) and change in HR (second row) with relative 95% CI. Higher chances of 5-year RFS (lower HR) were observed for patients with higher values of lymphocyte count, whereas no significant prognostic influence was observed for platelet count, WBC and neutrophil count.



**Figure S20.** Linear (monocyte and eosinophil count, albumin) and non-linear (basophil count) effect on 5-year RFS (first row) and change in HR (second row) with relative 95% CI. Higher chances of 5-year RFS (lower HR) were observed for patients with higher values of albumin and lower values of basophil count. No significant prognostic influence was observed for monocyte and eosinophil count.



**Figure S21.** Kaplan-Meier survival curves with relative 95%CI and table of patients at risk depicting relapse-free survival according to the pre-operative blood markers showing a non-linear effect and categorised into the prognostic classes found at the X-tile analysis.