Regression without regrets

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# Preface

The focus of this report is to provide guidance on conducting initial data analysis in a reproducible manner in the context of intended regression analyses.

# 1. Multivariate analyses

## 1.1 V1: Association with structural variables

A scatterplot of each predictor with age, with different panels for males and females have been constructed. Associated Spearman correlation coefficients have been computed.

### 1.1.1 Key predictors

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### 1.1.2 Predictors of medium importance

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### 1.1.3 Remaining predictors

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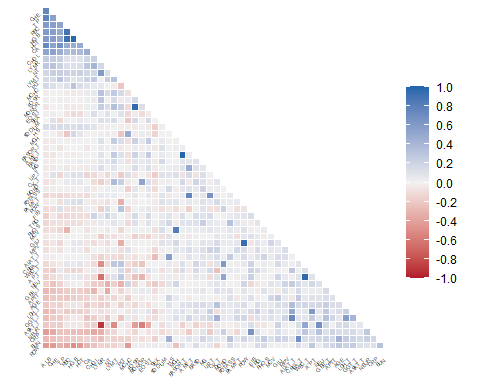
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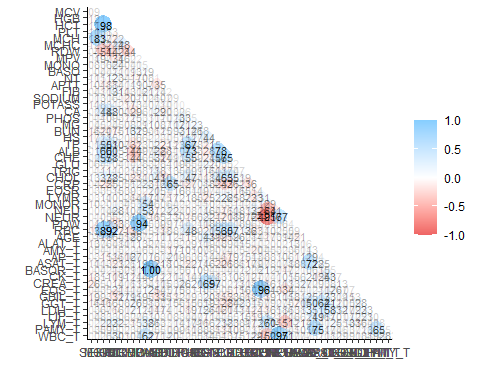
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## 1.2 V2: Correlation coefficients between all predictors

Correlation computed with  
\* Method: 'spearman'  
\* Missing treated using: 'pairwise.complete.obs'

The Spearman correlation coefficients are depicted in a quadratic heat map:

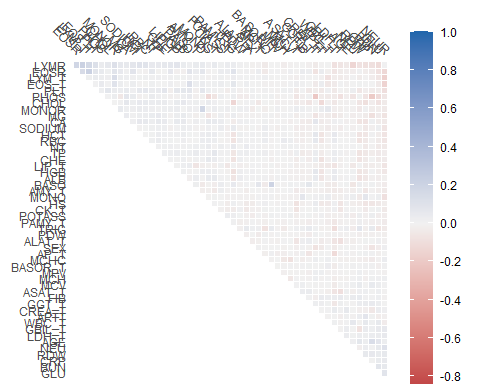


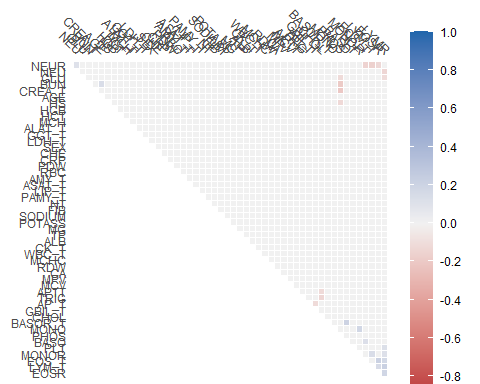


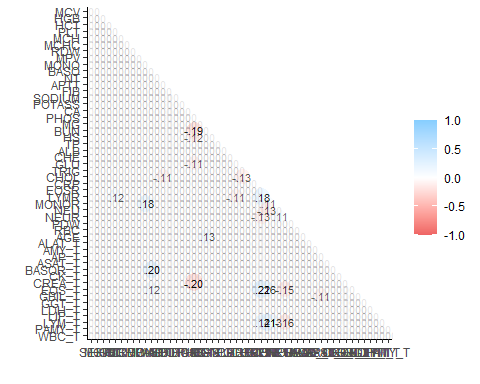
| term | SEX | MCV | HGB | HCT | PLT | MCH | MCHC | RDW | MPV | MONO | BASO | NT | APTT | FIB | SODIUM | POTASS | CA | PHOS | MG | BUN | HS | TP | ALB | CHE | GLU | TRIG | CHOL | CRP | EOSR | LYMR | MONOR | NEU | NEUR | PDW | RBC | AGE | ALAT\_T | AMY\_T | AP\_T | ASAT\_T | BASOR\_T | CK\_T | CREA\_T | EOS\_T | GBIL\_T | GGT\_T | LDH\_T | LIP\_T | LYM\_T | PAMY\_T | WBC\_T |
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| SEX |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCV | -.09 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HGB | -.12 | .01 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HCT | -.11 | .01 | .98 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PLT | .10 | -.13 | .08 | .13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCH | -.14 | .83 | .17 | .07 | -.22 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MCHC | -.12 | -.01 | .32 | .14 | -.22 | .48 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| RDW | .04 | -.02 | -.51 | -.44 | -.09 | -.23 | -.44 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MPV | -.04 | .19 | .07 | .07 | -.34 | .16 | .02 | .02 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MONO | -.08 | .03 | .06 | .06 | .24 | -.00 | -.04 | -.01 | .05 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BASO | .00 | .04 | -.04 | -.02 | .11 | -.01 | -.09 | .13 | .02 | .19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NT | .11 | -.05 | .11 | .12 | .23 | -.04 | -.01 | -.17 | -.10 | -.08 | -.01 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| APTT | -.10 | .04 | -.18 | -.18 | -.14 | .01 | -.04 | .19 | .10 | .07 | .04 | -.35 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| FIB | -.04 | -.03 | -.11 | -.09 | .31 | -.10 | -.13 | -.01 | -.06 | .21 | -.02 | .14 | .02 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| SODIUM | -.00 | .13 | .01 | .06 | .01 | -.00 | -.20 | .02 | .10 | -.02 | .06 | .10 | -.02 | -.09 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| POTASS | -.11 | .08 | -.03 | .01 | .02 | -.03 | -.17 | .13 | .04 | -.00 | .07 | .03 | .10 | -.01 | -.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CA | .02 | -.07 | .48 | .48 | .20 | -.01 | .09 | -.29 | -.06 | -.01 | -.00 | .29 | -.20 | .03 | .02 | .06 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PHOS | .01 | .04 | -.10 | -.09 | .03 | -.02 | -.12 | .15 | .03 | .03 | .11 | .02 | .10 | -.02 | .10 | .33 | -.05 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MG | -.04 | .05 | .02 | .04 | .05 | -.00 | -.08 | .02 | .09 | .11 | .10 | .08 | .07 | .10 | .17 | .21 | .02 | .23 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| BUN | -.16 | .11 | -.20 | -.17 | -.15 | .01 | -.16 | .32 | .19 | .03 | .06 | -.12 | .15 | .09 | .02 | .31 | -.14 | .26 | .18 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HS | -.17 | .02 | .13 | .15 | -.02 | .00 | -.03 | .06 | .06 | .02 | .02 | -.03 | .00 | -.05 | -.02 | .15 | .12 | .17 | -.00 | .44 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TP | -.00 | -.12 | .50 | .51 | .30 | -.07 | .06 | -.32 | -.13 | .00 | -.00 | .22 | -.21 | .12 | -.13 | -.02 | .67 | -.08 | -.01 | -.21 | .15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALB | .01 | -.10 | .60 | .60 | .15 | .01 | .17 | -.44 | -.09 | -.07 | -.06 | .28 | -.28 | -.11 | -.00 | -.04 | .73 | -.13 | -.02 | -.28 | .13 | .78 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CHE | .02 | -.09 | .57 | .58 | .15 | -.01 | .12 | -.44 | -.06 | -.05 | -.06 | .31 | -.24 | -.09 | .11 | -.02 | .55 | -.09 | -.02 | -.24 | .14 | .56 | .75 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GLU | -.06 | .04 | -.01 | -.00 | -.04 | .01 | -.04 | .02 | .08 | .03 | -.02 | -.08 | -.04 | .11 | -.09 | .06 | -.05 | -.04 | -.00 | .22 | .10 | -.03 | -.05 | .02 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TRIG | -.01 | .01 | -.11 | -.11 | .00 | -.02 | -.05 | .15 | .08 | -.02 | .13 | .18 | -.03 | .13 | .05 | .04 | -.09 | .09 | .11 | .16 | .10 | -.13 | -.17 | -.04 | .07 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CHOL | .13 | -.02 | .37 | .38 | .25 | .00 | .05 | -.23 | -.10 | -.10 | -.01 | .41 | -.30 | -.02 | .02 | -.04 | .47 | -.04 | -.04 | -.18 | .10 | .46 | .53 | .55 | -.03 | .19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CRP | -.04 | -.02 | -.25 | -.25 | -.00 | -.05 | -.06 | .12 | .05 | .23 | -.04 | -.16 | .20 | .65 | -.11 | -.05 | -.27 | -.00 | .08 | .18 | -.06 | -.23 | -.42 | -.36 | .12 | .11 | -.36 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EOSR | -.03 | .03 | -.05 | -.03 | .15 | -.03 | -.09 | .03 | -.02 | .01 | .20 | .15 | .04 | .01 | .16 | .08 | .04 | .11 | .09 | -.07 | -.04 | .01 | -.03 | .01 | -.16 | .15 | .05 | -.14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LYMR | .03 | -.01 | .10 | .10 | -.00 | .02 | .06 | -.14 | -.04 | -.17 | .10 | .17 | -.05 | -.17 | .12 | .01 | .18 | .05 | .07 | -.25 | -.03 | .22 | .26 | .25 | -.18 | .07 | .22 | -.33 | .31 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MONOR | -.10 | .02 | -.00 | -.01 | -.03 | .04 | .05 | -.03 | .01 | .54 | .06 | -.00 | .06 | .04 | -.02 | -.02 | .03 | -.01 | .05 | -.10 | -.02 | .03 | .03 | -.01 | -.11 | -.02 | -.04 | -.01 | .16 | .29 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NEU | .00 | .01 | .04 | .06 | .28 | -.04 | -.10 | .04 | .05 | .53 | .07 | -.12 | .04 | .22 | -.04 | .00 | -.08 | .01 | .04 | .16 | .04 | -.07 | -.16 | -.10 | .18 | -.03 | -.12 | .32 | -.24 | -.64 | -.31 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NEUR | .01 | .00 | -.05 | -.05 | .02 | -.03 | -.06 | .10 | .03 | -.03 | -.16 | -.15 | .02 | .13 | -.10 | -.02 | -.15 | -.06 | -.08 | .22 | .04 | -.17 | -.20 | -.18 | .19 | -.07 | -.16 | .28 | -.42 | -.91 | -.57 | .67 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PDW | -.04 | .11 | .12 | .13 | -.33 | .08 | .01 | .03 | .94 | .05 | .03 | -.09 | .09 | -.07 | .11 | .04 | -.02 | .04 | .10 | .18 | .08 | -.08 | -.04 | -.01 | .08 | .09 | -.06 | .03 | -.02 | -.04 | .00 | .06 | .04 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| RBC | -.07 | -.32 | .89 | .92 | .17 | -.21 | .11 | -.38 | -.01 | .05 | -.03 | .13 | -.18 | -.08 | .02 | -.02 | .48 | -.09 | .02 | -.20 | .13 | .53 | .60 | .57 | -.01 | -.12 | .36 | -.23 | -.04 | .10 | -.02 | .05 | -.05 | .09 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AGE | -.03 | .17 | -.18 | -.16 | -.04 | .05 | -.18 | .28 | .07 | .02 | .01 | -.10 | .11 | .12 | .00 | .11 | -.15 | .00 | .02 | .43 | .19 | -.19 | -.25 | -.19 | .26 | -.02 | -.08 | .14 | -.02 | -.17 | -.03 | .09 | .14 | .05 | -.21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ALAT\_T | -.13 | .07 | .06 | .04 | -.08 | .10 | .11 | -.01 | .13 | .02 | .07 | -.05 | .03 | -.03 | .02 | .02 | -.09 | .03 | .11 | .09 | .01 | -.08 | -.09 | -.04 | .05 | .15 | -.01 | .00 | -.02 | -.00 | -.00 | .02 | .01 | .13 | .01 | -.06 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AMY\_T | -.05 | .04 | .01 | .01 | -.05 | .02 | -.02 | .01 | .06 | -.03 | .03 | .03 | .03 | -.17 | .11 | .10 | -.05 | .10 | .07 | .09 | .00 | -.07 | -.04 | .02 | -.05 | .01 | .00 | -.20 | .04 | .05 | -.03 | -.02 | -.03 | .06 | -.01 | -.04 | .13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AP\_T | .03 | -.01 | -.15 | -.13 | .16 | -.10 | -.16 | .27 | -.00 | .07 | .16 | .01 | .04 | .21 | -.09 | .06 | -.03 | .06 | .05 | .14 | .04 | .06 | -.17 | -.19 | .02 | .15 | .04 | .13 | .08 | -.08 | -.03 | .10 | .06 | -.00 | -.11 | .11 | .29 | -.04 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ASAT\_T | -.10 | .11 | -.03 | -.05 | -.23 | .12 | .06 | .11 | .19 | .06 | .07 | -.21 | .18 | -.10 | -.02 | .05 | -.22 | .07 | .14 | .16 | .03 | -.20 | -.26 | -.18 | .06 | .11 | -.17 | .09 | -.07 | -.08 | .01 | .07 | .08 | .18 | -.08 | .07 | .72 | .18 | .25 |  |  |  |  |  |  |  |  |  |  |  |  |
| BASOR\_T | .00 | .04 | -.02 | -.00 | .13 | -.02 | -.09 | .11 | .01 | .17 | 1.00 | .01 | .04 | -.02 | .05 | .06 | .01 | .10 | .09 | .04 | .01 | .01 | -.04 | -.04 | -.02 | .12 | .02 | -.06 | .21 | .12 | .07 | .04 | -.17 | .02 | -.01 | .00 | .06 | .03 | .15 | .05 |  |  |  |  |  |  |  |  |  |  |  |
| CK\_T | -.18 | .05 | .11 | .10 | -.19 | .11 | .12 | -.14 | .14 | .08 | -.07 | -.12 | .12 | -.10 | .11 | .03 | -.14 | .04 | .13 | .07 | .08 | -.13 | -.03 | .10 | .08 | .00 | -.12 | .07 | -.07 | -.04 | .00 | .10 | .05 | .15 | .06 | -.02 | .20 | .15 | -.25 | .43 | -.07 |  |  |  |  |  |  |  |  |  |  |
| CREA\_T | -.26 | .05 | -.00 | .01 | -.14 | .01 | -.06 | .13 | .13 | .04 | .03 | -.10 | .15 | .03 | -.04 | .26 | .02 | .20 | .10 | .69 | .57 | .00 | -.02 | -.02 | .13 | .11 | -.08 | .10 | -.08 | -.16 | -.03 | .10 | .13 | .13 | -.01 | .27 | .02 | .09 | .03 | .08 | .01 | .13 |  |  |  |  |  |  |  |  |  |
| EOS\_T | -.04 | .03 | -.05 | -.03 | .21 | -.04 | -.11 | .04 | -.01 | .12 | .25 | .14 | .05 | .07 | .15 | .08 | .03 | .11 | .10 | -.05 | -.05 | -.00 | -.05 | -.01 | -.15 | .16 | .04 | -.08 | .96 | .24 | .13 | -.08 | -.34 | -.02 | -.04 | -.01 | -.02 | .03 | .11 | -.07 | .26 | -.07 | -.07 |  |  |  |  |  |  |  |  |
| GBIL\_T | -.19 | .09 | .03 | -.01 | -.32 | .17 | .19 | .15 | .19 | .05 | .01 | -.33 | .15 | -.13 | -.12 | -.01 | -.09 | -.03 | .00 | .20 | .08 | -.15 | -.15 | -.23 | .06 | -.06 | -.18 | .11 | -.13 | -.19 | -.01 | .10 | .15 | .18 | -.04 | .13 | .25 | -.00 | .17 | .33 | -.01 | .09 | .15 | -.13 |  |  |  |  |  |  |  |
| GGT\_T | -.16 | .14 | -.16 | -.16 | .00 | .08 | -.07 | .26 | .09 | .08 | .13 | -.07 | .07 | .15 | -.06 | .05 | -.15 | .06 | .05 | .19 | .03 | -.13 | -.28 | -.24 | .08 | .23 | -.04 | .15 | .07 | -.09 | .02 | .07 | .05 | .07 | -.20 | .14 | .50 | .04 | .62 | .41 | .12 | -.10 | .05 | .09 | .28 |  |  |  |  |  |  |
| LDH\_T | -.03 | .06 | -.07 | -.06 | -.16 | .01 | -.07 | .21 | .12 | .10 | .14 | -.17 | .14 | -.01 | -.00 | .08 | -.19 | .07 | .15 | .26 | .10 | -.16 | -.20 | -.14 | .13 | .14 | -.12 | .14 | -.13 | -.16 | -.05 | .18 | .16 | .13 | -.08 | .13 | .35 | .11 | .16 | .58 | .11 | .32 | .17 | -.09 | .23 | .23 |  |  |  |  |  |
| LIP\_T | -.04 | .08 | -.03 | -.03 | .00 | .06 | -.02 | .07 | .06 | -.03 | .10 | .03 | -.00 | -.08 | .03 | .04 | -.04 | .07 | .07 | .11 | .04 | .01 | -.05 | -.05 | -.01 | .15 | .05 | -.19 | .13 | .12 | .03 | -.10 | -.11 | .06 | -.06 | -.01 | .21 | .49 | .16 | .17 | .10 | -.01 | .07 | .12 | .05 | .23 | .10 |  |  |  |  |
| LYM\_T | .02 | -.00 | .20 | .22 | .32 | -.02 | -.03 | -.15 | -.00 | .38 | .26 | .13 | -.03 | -.00 | .14 | .03 | .17 | .09 | .16 | -.16 | .01 | .23 | .18 | .23 | -.08 | .09 | .17 | -.13 | .27 | .60 | .15 | .11 | -.51 | .01 | .21 | -.14 | .03 | .04 | .01 | -.02 | .25 | .05 | -.10 | .33 | -.16 | -.04 | -.03 | .08 |  |  |  |
| PAMY\_T | -.03 | .05 | -.09 | -.09 | .00 | .02 | -.03 | .04 | .07 | -.02 | .05 | .05 | -.00 | -.09 | .09 | .06 | -.11 | .08 | .08 | .08 | -.05 | -.13 | -.14 | -.10 | -.09 | .07 | -.03 | -.13 | .07 | .05 | -.00 | -.03 | -.04 | .05 | -.10 | -.05 | .16 | .75 | .04 | .17 | .04 | .06 | .03 | .07 | .02 | .13 | .08 | .65 | .05 |  |  |
| WBC\_T | -.00 | .02 | .06 | .08 | .30 | -.03 | -.10 | .04 | .05 | .62 | .17 | -.11 | .04 | .20 | -.01 | .02 | -.05 | .05 | .08 | .14 | .05 | -.04 | -.13 | -.07 | .15 | -.01 | -.11 | .29 | -.16 | -.50 | -.22 | .97 | .51 | .07 | .07 | .07 | .03 | -.02 | .11 | .08 | .12 | .09 | .09 | .01 | .08 | .08 | .19 | -.08 | .28 | -.02 |  |

### 1.2.1 VE1: Comparing nonparametric and parametric predictor correlation

Correlation computed with  
\* Method: 'pearson'  
\* Missing treated using: 'pairwise.complete.obs'







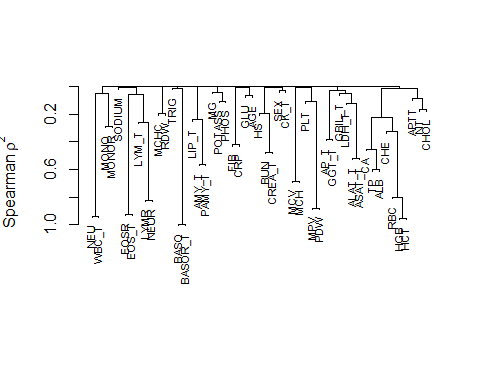
Predictor pairs for which Spearman and Pearson correlation coefficients differ by more than 0.1 correlation units will be depicted in scatterplots:

[1] "5 30 0.116152917777695"  
[1] "PLT vs LYMR"  
[1] "10 31 0.176186392005658"  
[1] "MONO vs MONOR"  
[1] "11 41 0.200362561560722"  
[1] "BASO vs BASOR\_T"  
[1] "11 44 0.11725750183667"  
[1] "BASO vs EOS\_T"  
[1] "13 27 -0.112648963102041"  
[1] "APTT vs CHOL"  
[1] "18 20 -0.191678768108447"  
[1] "PHOS vs BUN"  
[1] "18 21 -0.118369216089688"  
[1] "PHOS vs HS"  
[1] "18 25 -0.111253257532668"  
[1] "PHOS vs GLU"  
[1] "18 43 -0.203911938145989"  
[1] "PHOS vs CREA\_T"  
[1] "20 36 0.132979924617134"  
[1] "BUN vs AGE"  
[1] "25 30 -0.106309810126721"  
[1] "GLU vs LYMR"  
[1] "26 27 -0.133288393924576"  
[1] "TRIG vs CHOL"  
[1] "29 30 0.181883168867867"  
[1] "EOSR vs LYMR"  
[1] "29 33 -0.125480484418148"  
[1] "EOSR vs NEUR"  
[1] "29 44 0.217133026667466"  
[1] "EOSR vs EOS\_T"  
[1] "29 49 0.144966141221601"  
[1] "EOSR vs LYM\_T"  
[1] "30 31 0.110862274079076"  
[1] "LYMR vs MONOR"  
[1] "30 32 -0.133591263596999"  
[1] "LYMR vs NEU"  
[1] "30 44 0.164395907443225"  
[1] "LYMR vs EOS\_T"  
[1] "30 49 0.214549932616031"  
[1] "LYMR vs LYM\_T"  
[1] "31 49 0.131901869691057"  
[1] "MONOR vs LYM\_T"  
[1] "32 33 0.106215201902213"  
[1] "NEU vs NEUR"  
[1] "33 44 -0.148722806921716"  
[1] "NEUR vs EOS\_T"  
[1] "33 49 -0.158088587990326"  
[1] "NEUR vs LYM\_T"  
[1] "39 45 -0.110654916183634"  
[1] "AP\_T vs GBIL\_T"

[1] 25

### 1.2.2 VE2: Variable clustering

A variable clustering analysis has been performed to evaluate which predictors are closely associated. The dendrogram groups predictors by their correlation.



In the following scatterplots we show predictor pairs with Spearman correlation coefficients greater than 0.8:

### 1.2.3 VE3: Redundancy

Variance inflation factors (VIF) will be computed between the candidate predictors. This will be done for the three possible candidate models, and using all complete cases in the respective candidate predictor sets. Since , we also report the multiple R-squared values. Redundancy was further explored by computing parametric additive models for each predictor in the key predictor model and the extended predictor model. VIFs and multiple are reported from those models, again for the three predictor sets.

#### 1.2.3.1 VIF for key predictor model

[1] "SEX" "MCV" "HGB" "HCT" "PLT" "MCH" "MCHC"   
 [8] "RDW" "MPV" "MONO" "BASO" "NT" "APTT" "FIB"   
[15] "SODIUM" "POTASS" "CA" "PHOS" "MG" "BUN" "HS"   
[22] "TP" "ALB" "CHE" "GLU" "TRIG" "CHOL" "CRP"   
[29] "EOSR" "LYMR" "MONOR" "NEU" "NEUR" "PDW" "RBC"   
[36] "AGE" "ALAT\_T" "AMY\_T" "AP\_T" "ASAT\_T" "BASOR\_T" "CK\_T"   
[43] "CREA\_T" "EOS\_T" "GBIL\_T" "GGT\_T" "LDH\_T" "LIP\_T" "LYM\_T"   
[50] "PAMY\_T" "WBC\_T"

~SEX + MCV + HGB + HCT + PLT + MCH + MCHC + RDW + MPV + MONO +   
 BASO + NT + APTT + FIB + SODIUM + POTASS + CA + PHOS + MG +   
 BUN + HS + TP + ALB + CHE + GLU + TRIG + CHOL + CRP + EOSR +   
 LYMR + MONOR + NEU + NEUR + PDW + RBC + AGE + ALAT\_T + AMY\_T +   
 AP\_T + ASAT\_T + BASOR\_T + CK\_T + CREA\_T + EOS\_T + GBIL\_T +   
 GGT\_T + LDH\_T + LIP\_T + LYM\_T + PAMY\_T + WBC\_T

Available sample size:  
 3979 ( 27.08 %)

Variance inflation factors:

SEX MCV HGB HCT PLT MCH MCHC RDW MPV MONO   
 1.34 129.57 254.36 249.42 1.92 179.46 47.48 1.89 9.17 4.30   
 BASO NT APTT FIB SODIUM POTASS CA PHOS MG BUN   
 3.48 1.46 1.22 2.91 1.44 1.41 2.08 1.56 1.30 3.23   
 HS TP ALB CHE GLU TRIG CHOL CRP EOSR LYMR   
 1.76 4.51 6.34 2.83 1.25 1.40 1.87 2.84 77.58 2279.22   
 MONOR NEU NEUR PDW RBC AGE ALAT\_T AMY\_T AP\_T ASAT\_T   
 548.43 9.41 3752.11 9.14 40.08 1.45 3.90 2.72 2.34 6.56   
BASOR\_T CK\_T CREA\_T EOS\_T GBIL\_T GGT\_T LDH\_T LIP\_T LYM\_T PAMY\_T   
 5.65 2.22 2.87 3.40 1.61 2.60 2.25 2.18 4.59 3.40   
 WBC\_T   
 16.31

Multiple R-squared:

SEX MCV HGB HCT PLT MCH MCHC RDW MPV MONO   
 0.2521 0.9923 0.9961 0.9960 0.4791 0.9944 0.9789 0.4705 0.8909 0.7673   
 BASO NT APTT FIB SODIUM POTASS CA PHOS MG BUN   
 0.7123 0.3166 0.1799 0.6566 0.3035 0.2927 0.5191 0.3608 0.2322 0.6908   
 HS TP ALB CHE GLU TRIG CHOL CRP EOSR LYMR   
 0.4334 0.7785 0.8423 0.6469 0.2025 0.2874 0.4659 0.6473 0.9871 0.9996   
 MONOR NEU NEUR PDW RBC AGE ALAT\_T AMY\_T AP\_T ASAT\_T   
 0.9982 0.8938 0.9997 0.8906 0.9751 0.3126 0.7433 0.6322 0.5719 0.8475   
BASOR\_T CK\_T CREA\_T EOS\_T GBIL\_T GGT\_T LDH\_T LIP\_T LYM\_T PAMY\_T   
 0.8230 0.5495 0.6516 0.7057 0.3786 0.6157 0.5546 0.5416 0.7821 0.7057   
 WBC\_T   
 0.9387

#### 1.2.3.2 VIF for model with key predictors and predictors of medium importance

#### 1.2.3.3 VIF for all predictor model

#### 1.2.3.4 Redundancy by parametric additive model: key predictor model

#### 1.2.3.5 Redundancy by parametric additive model: key predictors and predictors of medium importance

#### 1.2.3.6 Redundancy by parametric additive model: all predictors