Supplemental Table 1: Characteristics of blood donors and RBC storage duration

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| --- | --- | --- | --- | --- | --- |
|  | All donors  (n=69) | Sex-matched transfusion  (n=32) | Sex-mismatched transfusion  (n=37) | | *p value* |
| Sex |  |  |  | |  |
| Female, % (n) | 53.6 (37) | 46.9 (15) | 59.5 (22) | | 0.30 |
| Age |  |  |  | |  |
| Median, yrs (IQR) | 49 (36.8-56.3) | 51 (37.5-62) | 49 (35-56) | | 0.50 |
| Weight |  |  |  |  | |
| Median, kg (IQR) | 79 (68-88) | 79 (71.5-87.8) | 79 (66-91) | 0.71 | |
| Height |  |  |  |  | |
| Median, cm (IQR) | 176 (169.5-183) | 176 (170-183) | 177 (168.5-182) | 0.88 | |
| Storage duration |  |  |  |  | |
| Median, days (IQR) | 13 (6.5-23) | 13 (6.5-22.5) | 14.5 (6.5-23.5) | 0.72 | |

Supplemental Table 2: Correlation between endothelial activation markers and storage duration

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | All patients | | | | Sex-matched transfusion | | | | Sex-mismatched transfusion | | | |
| ΔT1 | | ΔT24 | | ΔT1 | | ΔT24 | | ΔT1 | | ΔT24 | |
| r | *p value* | r | *p value* | r | *p value* | r | *p value* | r | *p value* | r | *p value* |
| Syndecan-1 | 0.09 | 0.48 | 0.10 | 0.48 | 0.04 | 0.78 | 0.24 | 0.26 | 0.27 | 0.13 | -0.01 | 0.99 |
| sICAM-1 | -0.02 | 0.88 | -0.12 | 0.37 | 0.02 | 0.90 | -0.09 | 0.62 | -0.06 | 0.78 | -0.17 | 0.38 |
| sTM | 0.13 | 0.32 | 0.01 | 0.96 | 0.02 | 0.88 | -0.04 | 0.78 | 0.07 | 0.72 | 0.01 | 0.99 |
| vWF:Ag | 0.12 | 0.39 | -0.04 | 0.79 | 0.01 | 0.97 | 0.23 | 0.23 | 0.14 | 0.55 | -0.19 | 0.35 |
| IL-6 | 0.06 | 0.62 | -0.05 | 0.71 | 0.25 | 0.22 | -0.12 | 0.58 | -0.07 | 0.72 | -0.06 | 0.78 |
| TNF-α | 0.19 | 0.14 | 0.02 | 0.88 | 0.023 | 0.27 | 0.27 | 0.22 | 0.16 | 0.38 | -0.09 | 0.63 |
| Free Hb | 0.15 | 0.25 | 0.18 | 0.188 | 0.13 | 0.56 | 0.32 | 0.15 | 0.07 | 0.71 | 0.15 | 0.44 |
| Free Heme | 0.01 | 0.96 | 0.02 | 0.87 | -0.02 | 0.92 | 0.11 | 0.69 | 0.01 | 0.97 | 0.07 | 0.76 |

ΔT1: difference between the baseline testing and 1 hours after transfusion, ΔT24:difference between the baseline testing and 24 hours after transfusion, r: Spearman’s correlation coefficient, sICAM-1: soluble ICAM-1, sTM: soluble thrombomodulin, vWF:Ag: Von Willebrand Factor antigen, Free Hb: Free hemoglobin

Supplemental Figure 1. Box plots of endothelial activation mediators of (A) IL-6, (B) TNFα, (C) Free Hb, and (D) free Heme of sex-matched and sex-mismatched transfusion prior to transfusion (T0), 1 hour after transfusion (T1), and 24 hours after transfusion (T24). The box at each testing time point represents the interquartile ranges (IQR), the band inside the box is the median, and the top and bottom of the whiskers represent the full range of the minimum and maximum limit of all of the data.

Supplemental Figure 2. Post-transfusion differences between sex-matched and sex-mismatched transfusion groups endothelial activation mediators of (A) IL-6, (B) TNFα, (C) Free Hb, and (D) free Heme. ΔT1 were calculated from the difference between the baseline testing (T0) and 1 hours after transfusion (T1). ΔT24 were calculated between the baseline testing (T0) and 24 hours after transfusion (T24). The box at each testing time point represents the interquartile ranges (IQR), the band inside the box is the median, and the top and bottom of the whiskers represent the full range of the minimum and maximum limit of all of the data.