

Interlukin-6(IL-6) is better associated with frailty than high sensitivity C-reactive protein(hsCRP) – findings from the FRAXI study

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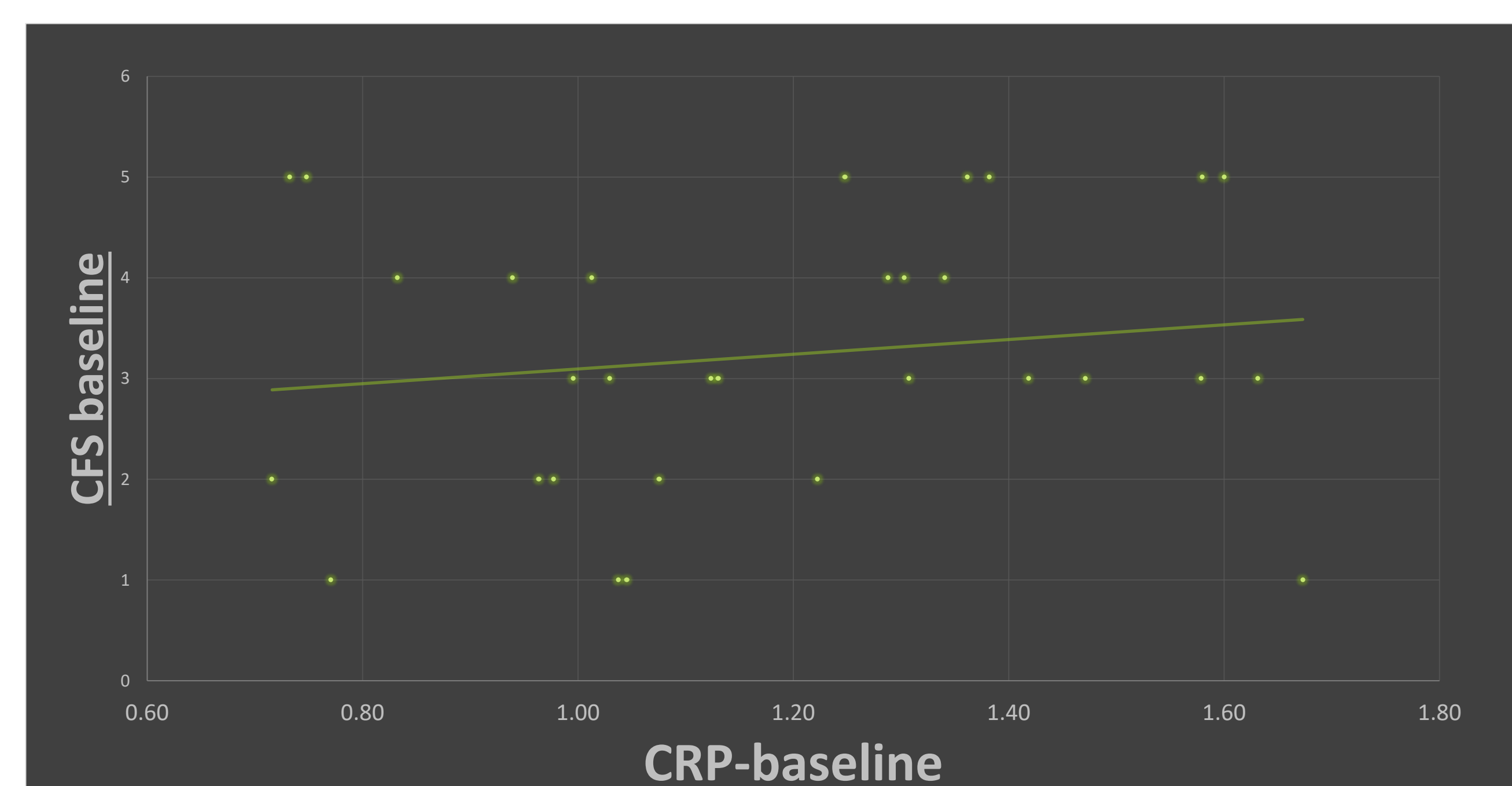
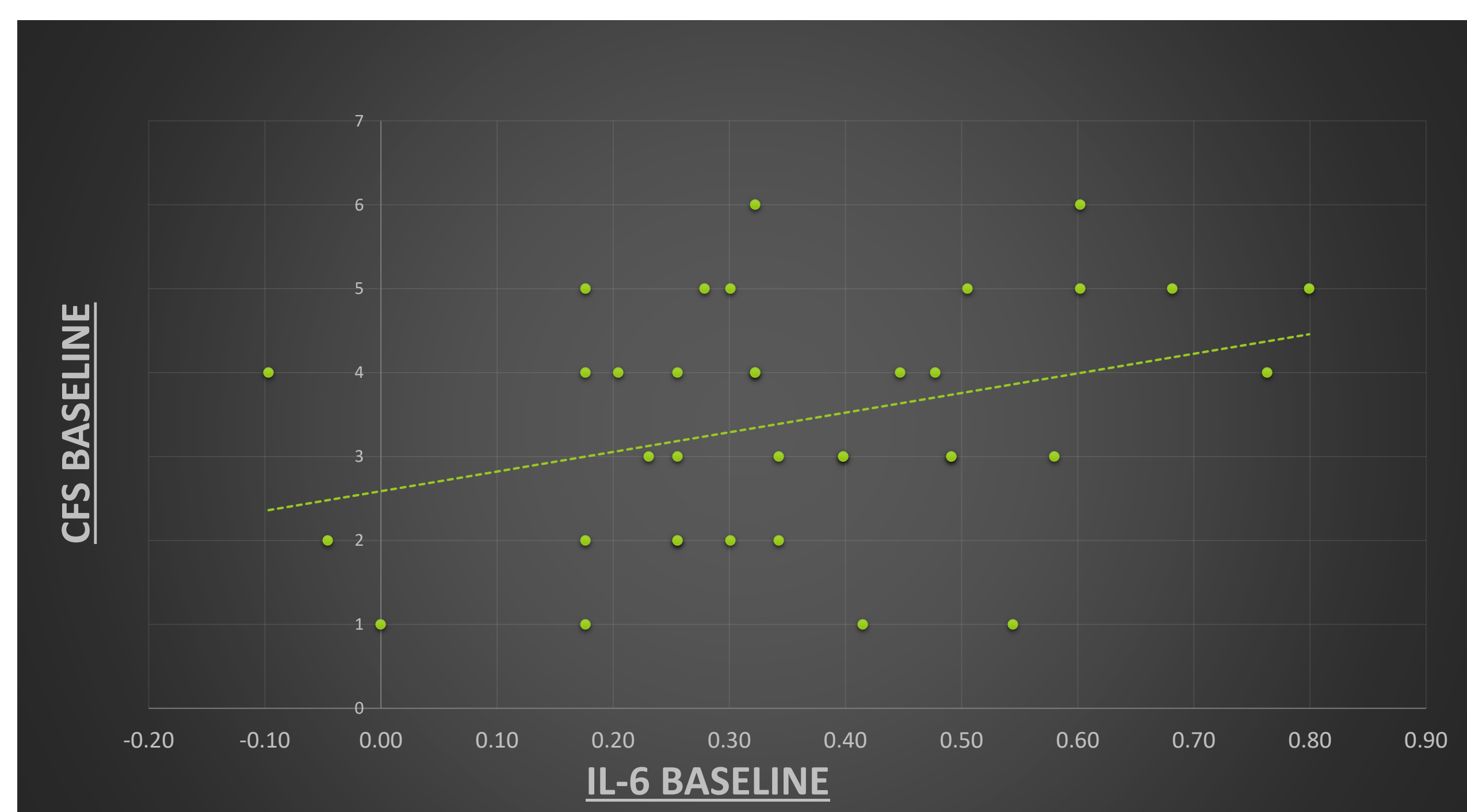
Introduction

Frailty is known to be associated with vascular ageing. The causative factors for frailty are not well understood. However, it is known that inflammation and oxidative stress are plausible conditions underpinning frailty with few studies in humans exploring this. In this study, we sought to explore the correlation between biomarkers of inflammation and frailty.

Methods

Fifty community dwelling older adults ≥ 70 years (mean age \pm standard deviation: 79 ± 5 years, 46% male) were followed up for six months. Exclusion factors included active malignancy and clinical frailty score (CFS) ≥ 7 . Vascular parameters such as pulse wave velocity (PWV, Complior[®]) and cardio-ankle vascular index (CAVI[®]) were measured at baseline. All other study measurements such as timed up and go test (TUGT), measures of sarcopenia, mini-mental state exam (MMSE), and biomarkers such as interleukin-6 (IL-6) and high sensitivity C-reactive protein (hs-CRP) were measured at both time intervals.

Figure 1: Correlation graphs between Clinical Frailty Score (CFS) and IL-6 and CRP at baseline

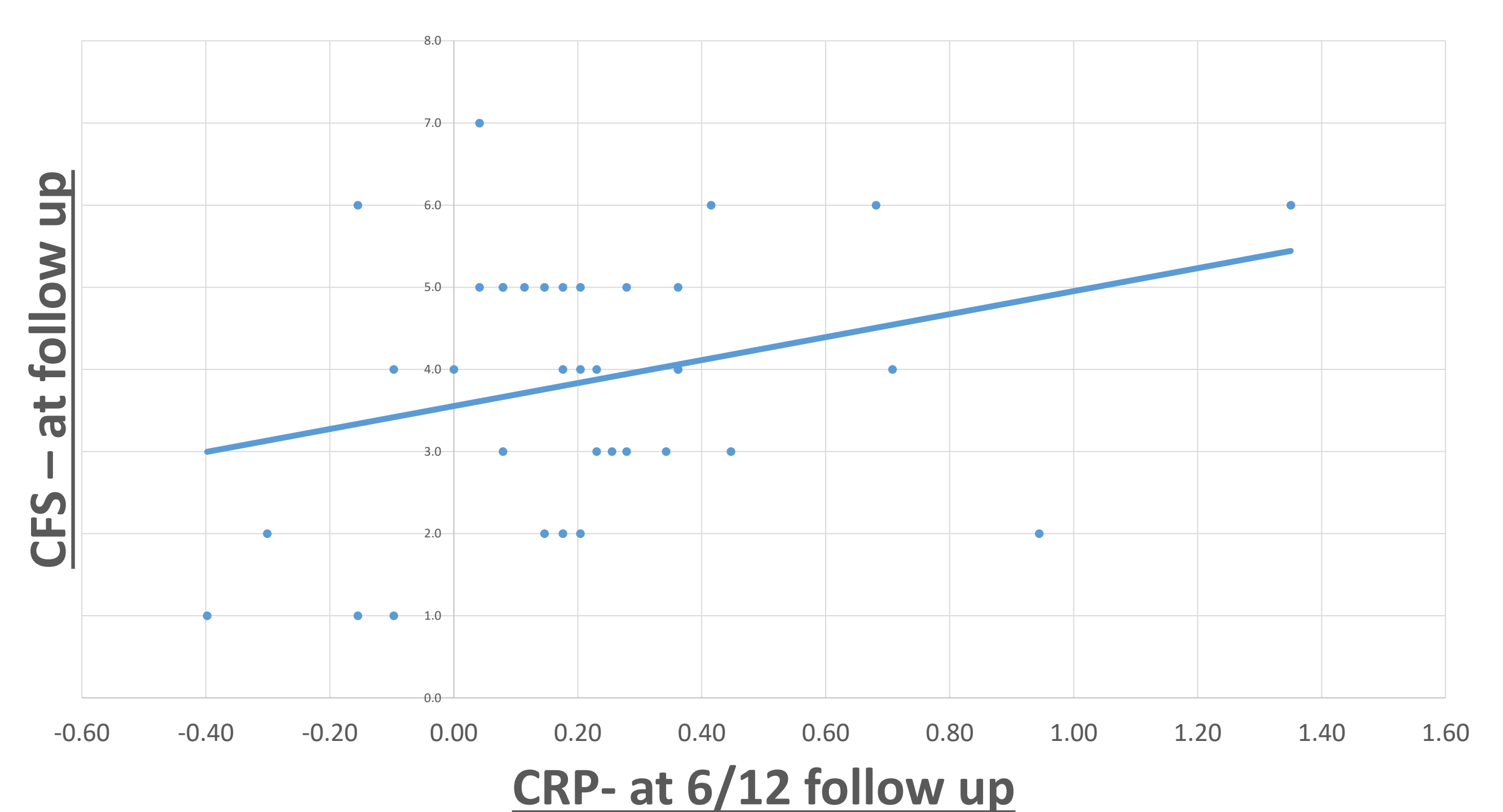
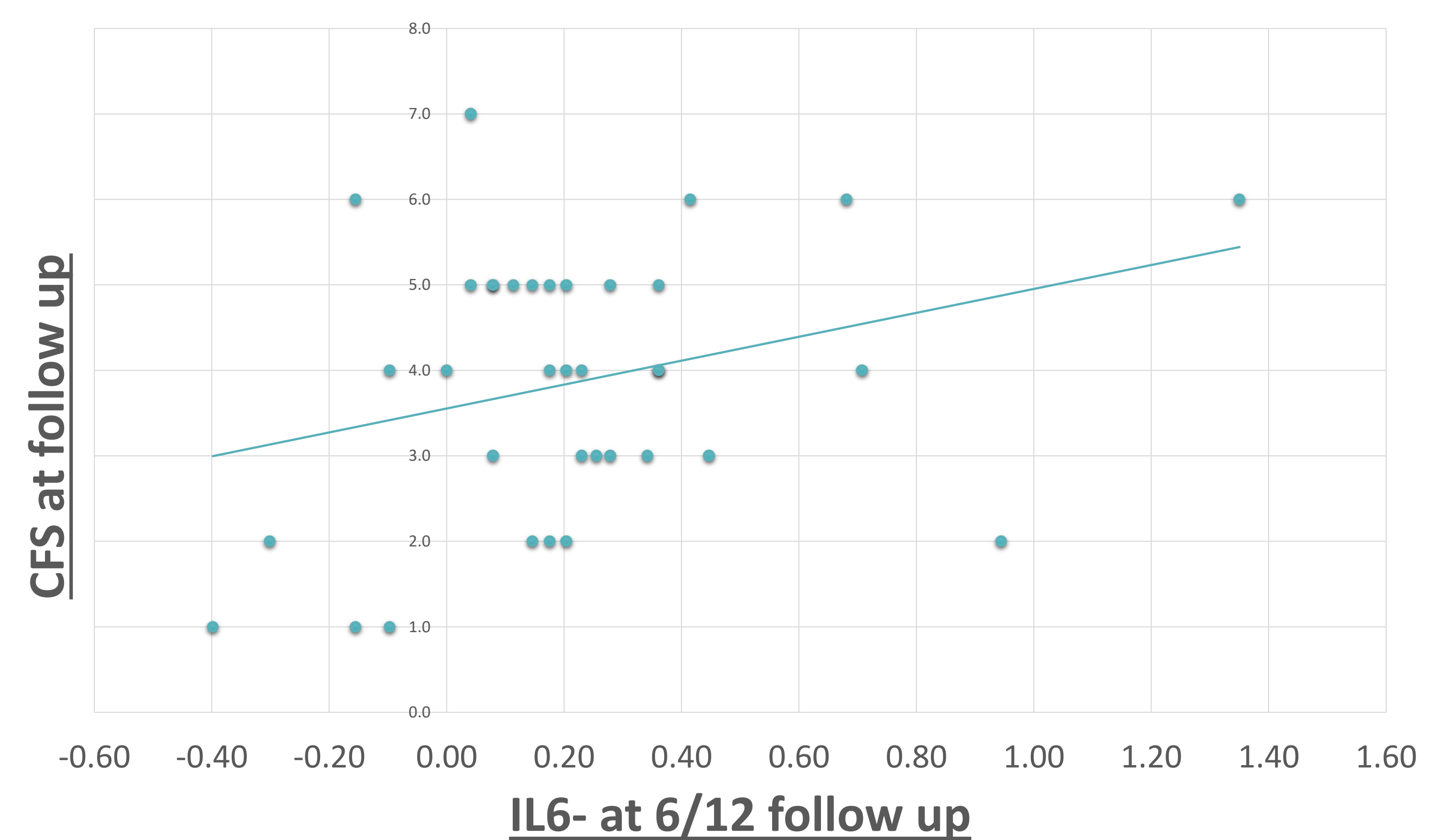


Results

Thirty-six participants had biomarkers analysed, and at baseline, mean CFS was $3.5 (\pm \text{sd } 1.4)$ and at follow up, mean CFS was $4.0 (\pm \text{sd } 1.5)$. At baseline, positive correlations were observed between chronological age ($r=0.4$; $p<0.05$) and CFS ($r=0.3$; $p<0.05$) with log IL-6, with no correlations between log IL-6 and vascular parameters; cf-PWV ($r=0.3$, $p=0.2$), cr-PWV ($r=0.1$, $p=0.5$) and CAVI ($r=0.1$, $p=0.7$).

At follow up, log IL-6 remained positively correlated with CFS ($r=0.3$; $p=0.08$) and chronological age ($r=0.4$; $p<0.05$); with no significant correlations observed between log hsCRP with chronological age, CFS and vascular parameters.

Figure 2: Correlation graphs between Clinical Frailty Score (CFS) and IL-6 and CRP at 6-months follow up



Conclusion

IL-6 correlates more closely with chronological age and frailty as compared with hs-CRP, suggesting that IL-6 is a better measure of frailty.

References

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